



Nonpoint Source
PROGRAM

Louisiana Nonpoint Source Annual Report Federal Fiscal Year (FFY) 2012



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1.0 Executive Summary

The State of Louisiana's FFY 2012 Nonpoint Source (NPS) Annual Report has been prepared in compliance with Section 319 of the Clean Water Act (CWA). This report outlines progress made by the State of Louisiana in protecting and restoring water bodies impacted by NPS pollution. Sources of NPS pollution include agricultural production, forestry, sand and gravel mining, urban storm water runoff, construction, and individual home sewage systems. The NPS program in Louisiana is administered by the Louisiana Department of Environmental Quality (LDEQ), but partners with Louisiana Department of Agriculture and Forestry (LDAF) and many other agencies and organizations on NPS activities, statewide water quality goals, prioritization of watershed planning and implementation activities, evaluating progress, and reporting program activities.

Louisiana's 2012 NPS Management Plan received approval from United States Environmental Protection Agency (USEPA) on November 21, 2012, and is available online at <http://www.deq.la.gov>. One of the important aspects of Louisiana's revised NPS Management Plan was inclusion of statewide and watershed annual milestones (see Appendix A). Progress reported in meeting these annual milestones has been referenced throughout this annual report.

LDEQ's NPS program hosted the 5th Annual Project Review meeting on December 12, 2012. This meeting provides an excellent forum for LDEQ, USEPA Region 6, watershed coordinators and other partners to hear about funded projects and share views on the state's NPS program.

In FFY 2012, the NPS program staff and watershed coordinators, through education and outreach efforts, informed in excess of 10,000 citizens of impacts of NPS pollution on the state's water bodies. Educational outreach activities provide an opportunity to interact and share valuable information with local stakeholders, community leaders, schools, businesses and citizens.

Highlights of the State's NPS Management Program for FFY 2012 included:

- LDEQ received approval for the Louisiana 2011-2016 NPS Management Plan on November 21, 2012;
- LDEQ prepared and submitted a success story to USEPA for the Lower Mermentau River and Lake Arthur;
- LDEQ prioritized NPS impaired water bodies by utilizing a ranking process and in collaboration with United States Department of Agriculture (USDA), LDAF and watershed stakeholders in selecting forty (40) water bodies to partially or fully restore by October 2016 (Figure 1);
- LDEQ continued implementing 24 NPS projects to reduce NPS pollution in Louisiana's water bodies;
- LDEQ continued watershed planning and implementation activities with nine (9) watershed coordinators located throughout the state;
- LDEQ's Geographic Information System (GIS) staff completed a comprehensive satellite imagery classification of land-uses for Ouachita River Basin. This tool will be used for watershed planning, Best Management Practice (BMP) implementation in impaired watersheds and protection of healthy watersheds;
- Partnered with USDA on implementing Mississippi River Basin Initiative (MRBI)/National Water Quality Initiative (NWQI)/Gulf of Mexico Initiative (GoMI);
- LDEQ expended approximately \$2,912,593 and LDAF approximately \$1,462,768 of Section 319 grant funds to implement projects to reduce NPS pollution and improve water quality;
- LDEQ partnered with Calcasieu Parish Police Jury to augment the Parish's existing individual home sewage system inspections program;

- LDEQ hosted USEPA Headquarters for a one-day workshop on a new Watershed Potential Recovery Tool;
- LDEQ's NPS staff participated in national work groups to revise national guidelines for Section 319 of the CWA;
- LDEQ's NPS staff participated on the state's Nutrient Management Strategy (NMS) with other state agencies;
- LDEQ's NPS Program applied for and received \$1.683 million of Section 319 FFY 2012 Base Funds;
- LDEQ's NPS Program applied for CWA Section 319 FFY 2013 Competitive Funds.

In FFY 2013, LDEQ will continue to focus on partially or fully restoring 40 priority NPS impaired water bodies slated by October 2016. LDEQ will partner with other agencies and organizations to compile data needed for Watershed Recovery Potential Screening Tool. This tool utilizes a number of indicators, including ecological, stressor and social, to compare the relative restorability of water bodies in the state.

LDEQ's FFY 2012 Section 319 Work Plan funds were allocated for water quality monitoring at the 12-digit hydrologic unit code (HUC) scale in eight (8) of the 40 priority water bodies. Watershed planning, implementation and evaluation at the 12-digit HUC scale allows for in depth focus on partially or fully restoring these impaired water bodies. LDEQ's NPS staff is planning to utilize a rapid water quality assessment (RWQA) process in some of these eight (8) priority water bodies. Water quality monitoring is scheduled to begin early in 2013.

In FFY 2013, LDEQ will continue to partner with watershed coordinators on developing and implementing WIPs to restore water bodies impaired by NPS pollutants. Through partnerships and close coordination with USDA and LDAF, LDEQ will implement BMPs in agricultural watersheds of the state. LDEQ will also continue to partner with stakeholders on statewide programs to reduce NPS pollutants from agriculture, forestry, individual home sewage systems, hydromodification, sand and gravel mining and urbanized areas.

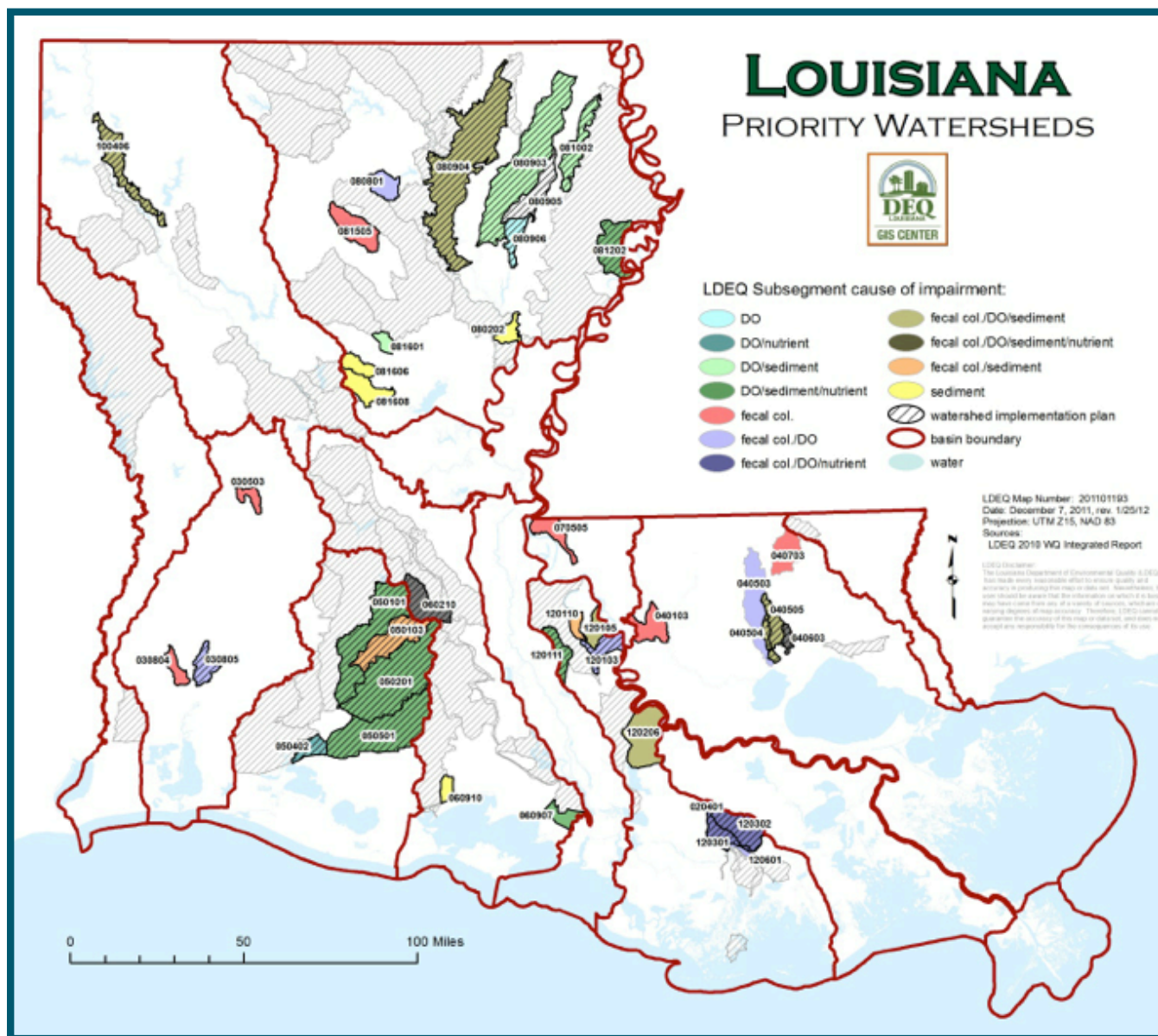


Figure 1. Map of selected 40 priority watersheds.



2.0 Water Quality Improvement

2.1 Louisiana's Progress on WQ-09(c), WQ-10 and SP-12

Louisiana's NPS Program has made significant progress in partially or fully restoring NPS impaired water bodies. USEPA's National Water Program included three (3) water quality measures for states to report NPS improvements; WQ-09(a-c), WQ-10 and SP-12. Louisiana reports on measure WQ-09(c), which requests states to report on estimated annual reductions in sediment from NPS to the state's water bodies. During FFY 2012, LDAF reported 44,516.2 tons or 89 million pounds of sediment were reduced through implementation of agricultural BMPs in Vermillion Teche, Mermentau River and Calcasieu River Basins.

Measure WQ-10 requests states to report on the number of water bodies identified in 2000 or subsequent years, primarily impaired by NPS pollutants that have been partially or fully restored. The state's 1999/2000 Integrated Report (IR) included approximately 155 water bodies with NPS-related impairments. Of those original 155 NPS impaired water bodies, 26 have been fully restored and 109 have been partially restored. Since 1999, LDEQ increased the number of water bodies it monitors and assesses on a bi-annual basis. Between 2000 and 2011, LDEQ monitored and assessed 476 water bodies for compliance with water quality standards. Based on Appendix C of the 2010 IR, approximately 295 of those 476 water bodies have had one or more pollutants delisted since 2004. According to the LDEQ draft 2012 IR currently under review, an additional 23 NPS impaired water bodies show improvement in one or more impairments.

Measure SP-12 requests states to report on the number of watersheds (i.e. 12 digit HUC) that have been partially or fully restored through a watershed approach. LDEQ continues to review the IR each reporting cycle to determine the number of watersheds partially or fully restored through watershed implementation. The 2010 IR included approximately 16 water bodies that could be reported through SP-12. In FFY 2012, LDEQ submitted one (1) NPS Success Story and is in the process of preparing an additional three (3) success stories.



3.0 NPS Funding

Louisiana's NPS program receives funding through Section 319 of the CWA, and partners with other agencies and organizations to prioritize funds such as USDA's Farm Bill, to implement its water quality goals and objectives. During FFY 2012, LDEQ's NPS program implemented 24 and LDAF implemented two (2) projects to reduce NPS pollution and improve water quality.

During FFY 2012, LDEQ expended approximately \$2,912,593 in CWA Section 319 funds for NPS and Source Water Protection, watershed coordination and NPS monitoring and implementation projects to protect and/or restore recreational waters and drinking water supplies. LDAF expended approximately \$1,462,768 on watershed implementation within multiple watersheds around the state. Table 1 provides a description of Section 319 grant expenditures during FFY 2012.

Grant Year	LDEQ (Federal)	LDAF (Federal)
2007	\$ 334,384	
2008	\$ 299,481	\$1,052,294
2009	\$ 440,998	\$292,165
2010	\$1,750,760	
2011	\$ 14,060	\$118,309 ¹
2011 Special Grant	\$ 2,670	
2011 MRBI	\$ 70,240	
Total	\$2,912,593	\$1,462,768

¹FFY 2010 carry over awarded in 2011.

Table 1. Federal 319 funds expended by grant award during FFY 2012.



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4.0 Coordination with Partners on Priority Watersheds and State Nutrient Management Strategy

4.1 FFY 2012 Priority Watersheds



During FFY 2012, LDEQ, LDAF and USDA continued their partnership in implementing BMPs and monitoring in-stream water quality in watersheds prioritized through USDA's MRBI and prioritized additional watersheds through USDA's GoMI and NWQI. In FFY 2011, USEPA provided \$1.09 million in Federal CWA Section 319 funds to Louisiana to evaluate effectiveness of BMPs in reducing sediment and nutrients through MRBI in Bayou Lafourche (subsegment 080904) and Turkey Creek (subsegment 080906) in Ouachita River Basin and Bayou Chene (050603) and Bayou Lacassine (050601) in Mermentau River Basin. During FFY 2012, quality assurance project plans (QAPPs) for these projects have been developed and approved, and sampling has been initiated in Bayou Lafourche, Bayou Chene and Bayou Lacassine.

Additionally in FFY 2012, USEPA provided \$437,184 in Federal CWA Section 319 funds to evaluate effectiveness of BMPs in reducing sediment and nutrients through GoMI in Bayou Queue de Tortue (subsegment 050501) and Grand Bayou/Little Grand Bayou (subsegment 120206). Similarly, USEPA provided \$402,048 in Federal CWA Section 319 funds to evaluate effectiveness of BMPs in reducing sediment, nutrients and bacteria through NWQI in Big Creek (subsegment 040703) and Bayou Louis/Lake Louis (080202/080203). For each of these watersheds, USDA and LDEQ partnered on selection of water quality monitoring locations at the 12-digit HUC scale to determine whether BMPs implemented through these USDA initiatives result in water quality improvements. LDEQ is currently developing QAPPs for each of these priority watersheds, with a goal of initiating water quality monitoring early in 2013.

The types of BMPs implemented through these special USDA initiatives include:

- Prescribed grazing, fencing and alternative water supplies for cattle; and
- Nutrient management, conservation crop rotation, residue management, cover crops and vegetated filter strips for croplands.

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Watershed	Subsegment	Watershed Basin	12-Digit HUC Name	12-Digit HUC
Bayou Lafourche	080904	Ouachita River	Crew Lake	080500011304
			Steep Bayou	080500011308
			Halfway Bayou	080500011401
	STATUS: QAPP approved March 20, 2012; monitoring started March 27, 2012			
Turkey Creek	080906	Ouachita River	Turkey Creek	080500011007
			Little Turkey Creek	080500011502
			West Turkey Creek	080500011503
			Turkey Creek Lake	080500011504
	STATUS: QAPP approved January 22, 2013			
Bayou Chene	050603	Mermentau River	Bayou Chene	080802020205
	STATUS: QAPP approved June 13, 2012; monitoring started June 20, 2012			
Bayou Lacassine	050601	Mermentau River	East Bayou Lacassine	080802020202
			West Bayou Lacassine	080802020204
			Thornwell Drainage Canal	080802020206
	STATUS: QAPP approved June 13, 2012; monitoring started June 20, 2012			

Table 2. FFY 2011 MRBI Projects.

Watershed	Subsegment	Watershed Basin	12-Digit HUC Name	12-Digit HUC
Big Creek	040703	Lake Pontchartrain	East Fork Big Creek	8070205020202
			Big Creek	8070205020203
Bayou Louis & Lake Louis	080202/080203	Ouachita River	Bayou Louis	080402070303

Table 3. FFY 2012 USDA NWQI Projects.

Watershed	Subsegment	Watershed Basin	12-Digit HUC Name	12-Digit HUC
Bayou Queue de Tortue	050501	Mermentau River	Bayou Grand Marais	80802020103
			Lyons Point Gully	80802020104
			Lazy Point Gully	80802020105
Grand Bayou and Little Grand Bayou	120206	Terrebonne	Bayou Corne	80903020302
			Bayou St. Vincent	80903020304

Table 4. USDA FFY 2012 GoMI Projects.

2012 Louisiana Nonpoint Source Annual Report

Watershed	Subsegment	Watershed Basin	12-Digit HUC Name	12-Digit HUC
Big Creek	040703	Lake Pontchartrain	East Fork Big Creek	080702050202
			Big Creek	080702050203
Bayou Queue de Tortue	050501	Mermentau River	Lyons Point Gully	080802020104
			Lazy Point Canal	080802020105
Bayou Louis	080202	Ouachita River	Black Bayou	080402070302
			Bayou Louis	080402070303

Table 5. FFY 2012 LDAF Section 319 Incremental Projects.

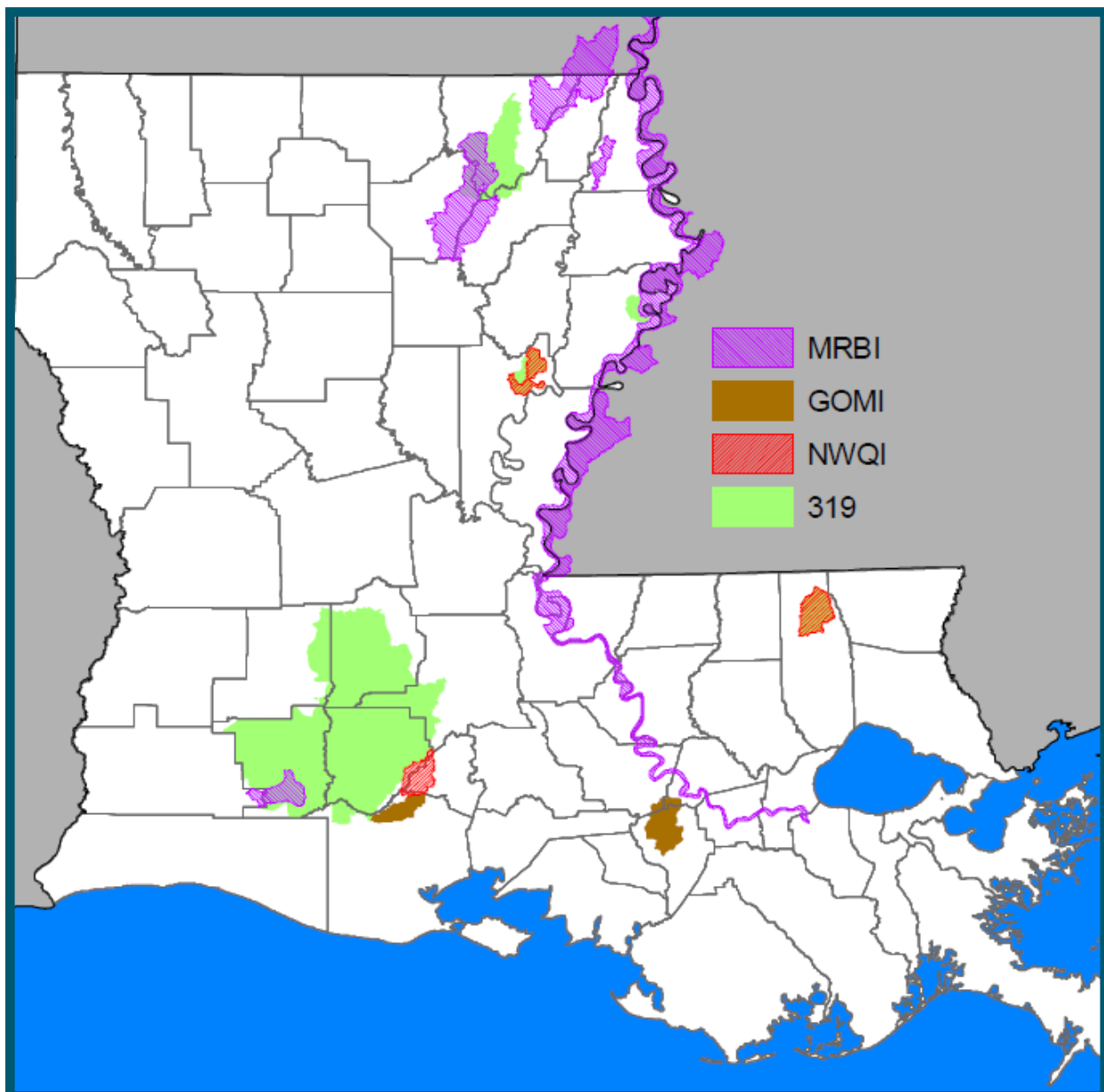


Figure 2. MRBI, GoMI, NWQI and other 319 monitoring projects.

4.2 Louisiana Nutrient Management Strategy

A primary focus of these initiatives is to reduce nutrients entering Louisiana's inland streams/bayous and coastal waters. The state of Louisiana is developing a NMS through interagency efforts of Coastal Protection and Restoration Authority (CPRA), LDEQ, Louisiana Department of Natural Resources (LDNR), LDAF and USDA. The state's NMS is developed as one component of a multi-state initiative to reduce nitrogen and phosphorus concentrations entering Louisiana's coastal waters, thereby reducing the zone of hypoxia. The Gulf Hypoxia Action Plan (2008) identified 11 actions, the first of which was to develop state level nutrient reduction strategies. Louisiana's NMS is based on coordination of existing programs and stakeholder involvement through a ten (10) step process. The ten (10) step process includes:

1	<i>Stakeholder Engagement</i>
2	<i>Decision Support Tools</i>
3	<i>Regulations, Policies, and Programs</i>
4	<i>Management Practices and Restoration Activities</i>
5	<i>Status and Trends</i>
6	<i>Watershed Characterization, Source Identification, and Prioritization</i>
7	<i>Incentives, Funding, and Economic Impact Analysis</i>
8	<i>Targets and Goals</i>
9	<i>Monitoring</i>
10	<i>Reporting</i>

Figure 3: Louisiana's ten (10) steps for developing the state's NMS.





5.0 Meeting NPS Milestones

5.1 Watershed Milestones

Louisiana's NPS Management Plan included a set of annual milestones for each of the state's 12 river basins. In FFY 2012, Louisiana's NPS program focused its efforts on watershed planning and implementation, in 13 of its 40 priority water bodies in six (6) of the state's 12 river basins. This watershed management approach utilizes total maximum daily load (TMDL) data, detailed land-use information from satellite imagery and watershed characterization to target specific areas in these watersheds where BMPs could be implemented to improve water quality. During FFY 2012, LDEQ's NPS staff continued partnerships with USDA, LDAF and watershed coordinators to revise or initiate development of WIPs and implementation of watershed planning activities.

Basin	Water Body	Subsegment
Calcasieu River	Six Mile Creek Indian Bayou	030503/030504 030805
Lake Pontchartrain	Natalbany River Selsers Creek Big Creek	040503 040603 040703
Mermentau River	Lake Arthur and Lower Mermentau River Bayou Queue de Tortue	050402 050501
Pearl River	Little Silver Creek	090503
Ouachita River	Bayou Louis and Lake Louis Lake St. Joseph Joe's Bayou	080202/080203 081202 081002
Terrebonne	Grand Bayou and Little Grand Bayou Middle Bayou Terrebonne	120206 120601

Table 6. WIPs developed in FFY 2012.

Also in FFY 2012 CWA Section 319 Base Funds, LDEQ prioritized the following eight (8) water bodies for targeted watershed monitoring:

Watershed	Subsegment	Basin
Big Creek	040703	Lake Pontchartrain
Bayou Queue de Tortue	050501	Mermentau River
Grand Bayou and Little Grand Bayou	120206	Terrebonne
Bayou Louis and Lake Louis	080202/080203	Ouachita River
Lake St. Joseph	081202	Ouachita River
Bayou Lafourche	080904	Ouachita River
Bayou Terrebonne (Upper and Middle)	120301/120601	Terrebonne
Six Mile Creek	030503/030504	Calcasieu River

Table 7. Targeted watersheds for monitoring using FFY 2012 Section 319 funding.

To better assess the site conditions, a team consisting of an LDEQ GIS specialist, a hydrologist and NPS staff examined land-use maps and determined potential sites for water quality monitoring in each of these eight (8) watersheds. In FFY 2012, the team conducted reconnaissance surveys in each watershed for accessibility and safety. QAPPs are currently being developed for each watershed and will be submitted to USEPA in early FFY 2013. Prior to conducting long-term monitoring on a bi-monthly basis, a RWQA method will be utilized to determine which sites are appropriate for intensive long-term monitoring. This method entails sampling multiple locations throughout the watershed to determine potential critical areas. Once these critical areas are identified, the number of monitoring sites will be scaled down to those locations contributing highest concentration of NPS pollutants (i.e. nutrients, sediment and/or bacteria). In FFY 2013, LDEQ's NPS staff will be collecting water quality data and presenting results to stakeholders in an effort to determine appropriate placement of BMPs and other types of watershed improvement activities needed to improve water quality.

5.2 Coordination with LDAF

LDEQ's Section 319 base funds are used to develop WIPs in priority watersheds. Accordingly, LDAF receives incremental funds to implement BMPs in watersheds where LDEQ has developed WIPs. Monitoring in these watersheds is conducted to determine the effectiveness of BMPs implemented. This collaborative effort ensures more efficient utilization of Louisiana's 319 funding in addressing NPS pollution. Figure 4 includes BMPs implemented through incremental funding in FFY 2012.

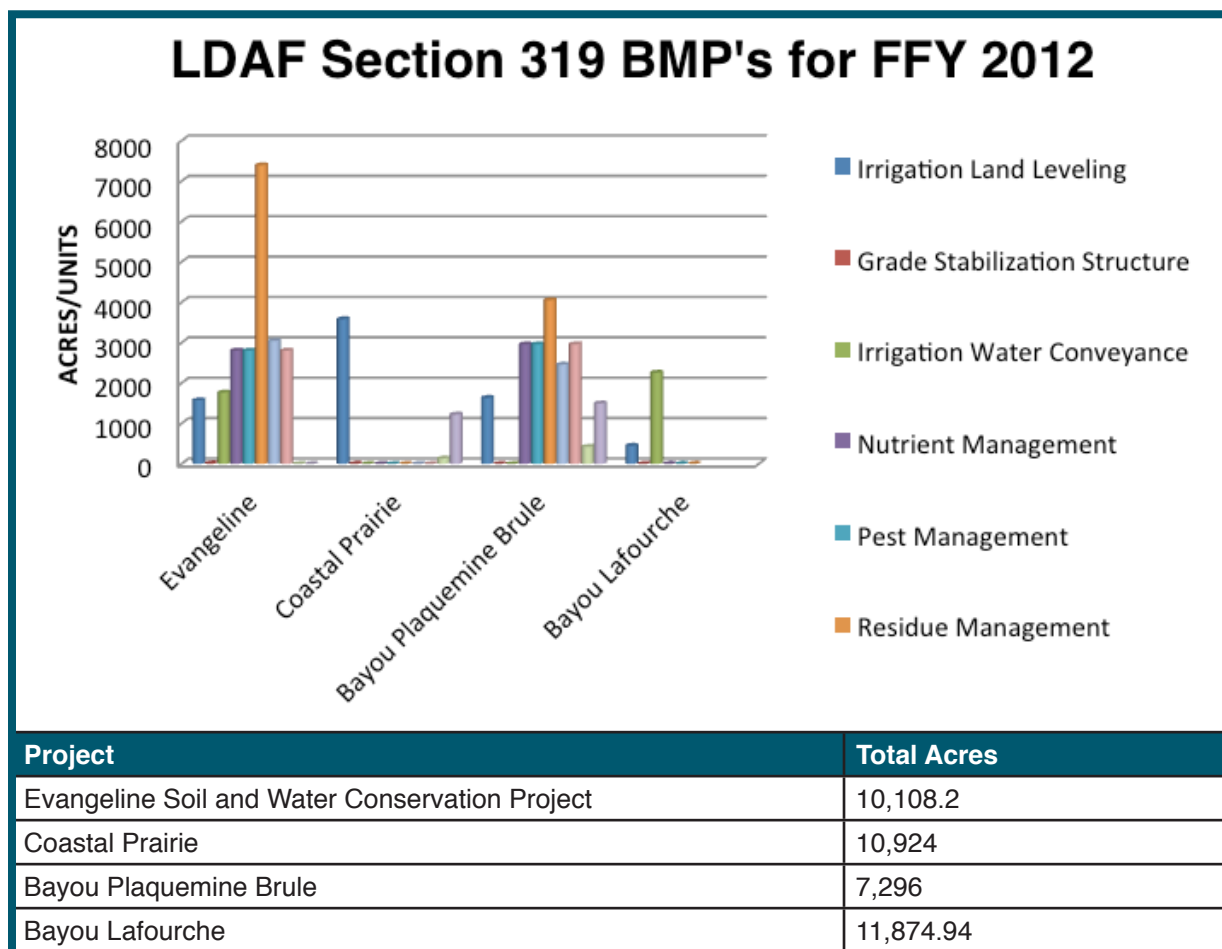


Figure 4. Acres of Agriculture BMPs implemented in FFY 2012.



6.0 Highlighted Activities in Louisiana's Priority Watersheds

6.1 Bayou Terrebonne Basin

6.1.1 Bayou Terrebonne Watershed



BAYOU LAND
RC&D Council

LDEQ Surveillance

Bayou Terrebonne
Task Force

Louisiana 2010 IR – Middle Bayou Terrebonne (120601)

- Fully meeting secondary contact recreation (SCR), but not meeting primary contact recreation (PCR) and fish and wildlife propagation (FWP) designated uses.
- Suspected causes of impairment: non-native aquatic plants, dissolved oxygen (DO) and fecal coliform.
- Suspected sources of impairment: introduction of non-native organisms and sewage discharges in unsewered areas.

In FFY 2012, Bayou Land Resource Conservation and Development District (RC&D) developed a WIP for Middle Bayou Terrebonne and continued sampling in Upper Bayou Terrebonne. The RC&D watershed planning team includes Watershed Coordinator Jennifer Roberts, Program Coordinator and Field Technician Blaise Pezold, academic interns Emily Gootee (Louisiana State University masters candidate) and Jordan Allen (Research

Experience in Solid Earth Science for Students [RESESS] Savannah State University bachelor of science candidate). In FFY 2012, the watershed planning team continued meeting with the Bayou Terrebonne watershed task force on a monthly basis to continue watershed planning efforts on both Upper and Middle Bayou Terrebonne.

The Middle Bayou Terrebonne WIP was developed using a process driven by local participation from the task force. The WIP identified key water quality issues, management programs and public outreach efforts that can be targeted to restore and protect this watershed. Jordan Allen developed a survey on the community's perspective of the health of the Bayou Terrebonne watershed. For this work, Mr. Allen was awarded best student paper at the 31st annual meeting of the National Association of Black Geoscientists (NABG).



Figure 5. From left: Jen Roberts, Emily Gootee, Blaise Pezold, Jordan Allen and Dr. Shirley Laska.

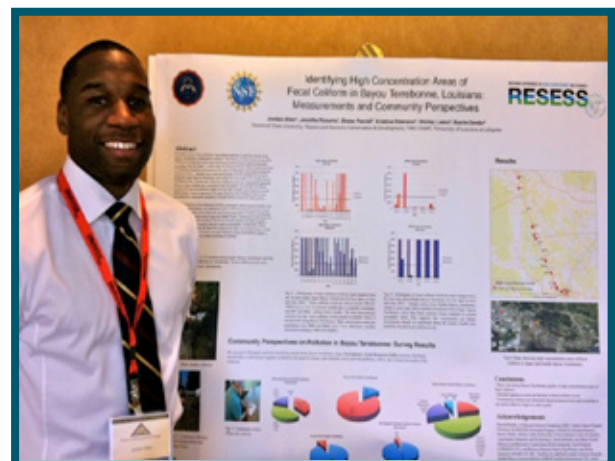


Figure 6. RESESS Intern Mr. Jordan Allen with his final research poster.

In FFY 2012, the RC&D continued sampling Upper Bayou Terrebonne where a 2006 TMDL for fecal coliform recommends a 95 percent reduction in bacterial loads during summer months and a 60 percent during winter months. As a result, five (5) critical areas have been identified. In FFY 2012, the LDEQ surveillance staff conducted a sweep of Bayou Terrebonne to locate unpermitted commercial waste water treatment systems and provided environmental regulatory assistance. Upper and Middle Bayou Terrebonne has been prioritized for monitoring funded by LDEQ's CWA Section 319 FFY 2012. In FFY 2013, Bayou Land RC&D will be conducting water quality monitoring and will continue to work with LDEQ and local stakeholders to implement the WIP in order to restore the designated uses of the bayou.



Figure 7. Jordan Allen collecting a fecal coliform sample on Bayou Terrebonne.

6.1.2 Grand Bayou and Little Grand Bayou Watershed



Louisiana 2010 IR – Grand Bayou and Little Grand Bayou (120206)

- Fully meeting SCR, but not meeting PCR and FWP designated uses.
- Suspected causes of impairment: DO, total suspended solid (TSS) and fecal coliform.
- Suspected sources of impairment: onsite treatment systems and unpermitted discharges.



Agriculture
Producers and
Local Landowners

In FFY 2012, LDEQ's NPS staff developed a WIP for Grand Bayou and Little Grand Bayou. The Bayous are located in Barataria-Terrebonne National Estuary (BTNEP), one of the most fragile estuaries in the country. The major land-use in this watershed is agriculture, other land-use includes bottomland hardwood forests and urban land. Grand Bayou was prioritized by USDA through GoMI. Through this initiative, agricultural producers will implement conservation practices to reduce the amount of nitrogen and phosphorus leaving their fields and their impacts on water quality. Grand Bayou and Little Grand Bayou has been prioritized by LDEQ for targeted water quality monitoring, funded with Section 319 FFY 2012 base funds. In FFY 2012, LDEQ's NPS staff, LDEQ's GIS specialist and hydrologist met with USDA to discuss land uses in the watershed and determined potential monitoring sites to conduct a RWQA and long-term monitoring in FFY 2013. LDEQ partnered with USDA, LDAF, local landowners and



Figure 8. Vegetation along Grand Bayou and Little Grand Bayou.

other stakeholders to implement the WIP and evaluate effectiveness of BMPs implemented to restore designated uses in this watershed.

6.1.3 Upper Terrebonne Basin Water Quality Improvement Project



Keep Iberville
Beautiful

Keep West Baton
Rouge Beautiful

False River
Civic Association

Local
Stakeholders

The Upper Terrebonne Basin (UTB) includes the uppermost portion of Terrebonne Basin, BTNEP and portions of Atchafalaya Basin National Heritage Trace. The UTB Initiative was formed by a Tri-Parish Partnership (TPP) between Iberville, Pointe Coupee and West Baton Rouge Parishes. The objective of the project is to improve the water quality in the UTB. Components of this project include identification of the sources of water quality problems, assessing water flow modifications, removal of waterborne debris, stakeholder outreach, watershed education outreach, and watershed plan development. The water problems in the UTB include poor water quality, erosion, sedimentation, loss of fisheries, and flooding.

In FFY 2012, the TPP began conducting watershed wide water quality monitoring during rain events to determine critical areas of NPS pollution. Sampling began in April of 2012 at 15 sampling sites throughout the UTB project area. In addition, the TPP assisted the United States Army Corps of Engineers (USACE) in implementing new federally funded projects to introduce freshwater into the UTB through relief wells along the Mississippi River below the City of Plaquemine in Point Pleasant. The relief wells will help maintain the integrity of the Mississippi River levee by allowing water to be released through the relief wells into the UTB rather than through levee seepages. The benefit will be greater freshwater improving water quality within the Lower Grand River and Belle River watersheds in the UTB.

In FFY 2012, the TPP met with a local Groundwater Management District, Capital Area Soil and Water Conservation District's (SWCD), False River Watershed Council, and local church groups to discuss water quality issues in the UTB project area. The TPP also hosted a Swamp Life Expo and partnered with Keep Iberville Beautiful, Keep West Baton Rouge Beautiful, and False

River Civic Association in organizing tri-parish cleanup events. TPP representatives participated in a WAFF 9 News Road Show segment in April of 2012 to discuss the Swamp Life Expo. In addition, various news articles were published on the litter problems and cleanup activities in the UTB. TPP initiated a media campaign in the City of Plaquemine partnering with Iberville Parish Solid Waste Department focusing clean up efforts on roadside ditches, canals and public access points to bayous.

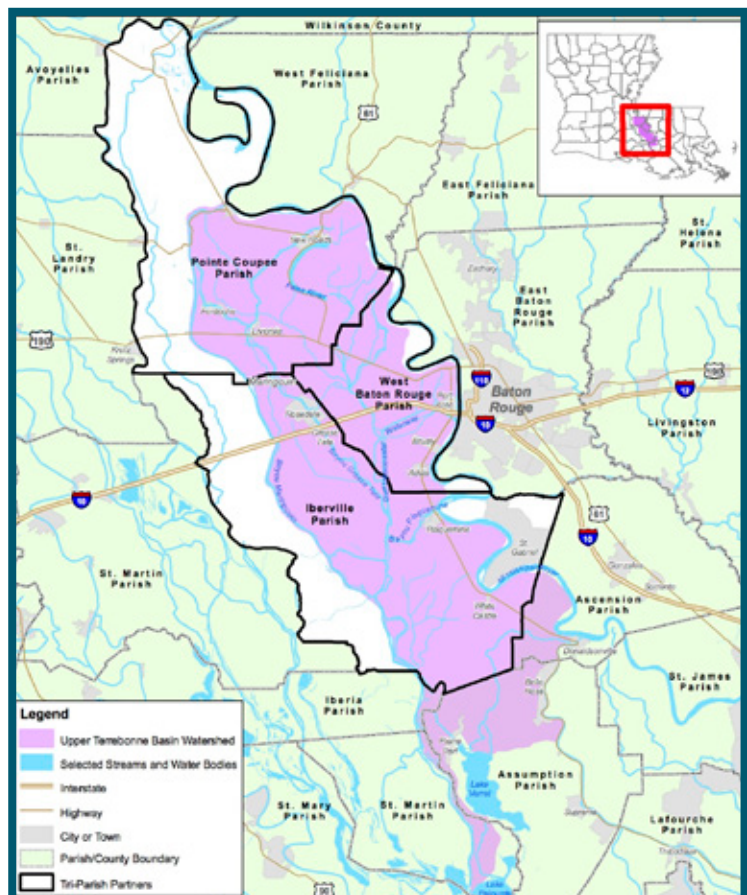


Figure 18. Area representing the UTB project area.

6.2 Lake Pontchartrain Basin

6.2.1 Big Creek Watershed



Agriculture
Producers and
Local Landowners

Louisiana 2010 IR – Big Creek (040703)

- Fully meeting FWP, but not meeting PCR and SCR designated uses.
- Suspected causes of impairment: fecal coliform.
- Suspected sources of impairment: dairies.

In FFY 2012, a WIP was developed for Big Creek, one of the state's 40 priority water bodies. A watershed tour, conducted by LDEQ's NPS staff and USDA's District Conservationist indicated there were 22 dairy farms in this watershed, some of which have been targeted for BMP implementation through NWQI. USDA will implement BMPs in this watershed through Farm Bill programs such as Environmental Quality Incentive Program (EQIP), Wildlife Habitat Incentives Program (WHIP), and Conservation Technical Assistance (CTA). LDEQ's NPS program received FFY 2012 CWA Section 319 base funds to monitor water quality in this watershed from FFY 2013 through 2015. These water quality data will determine effectiveness of these BMPs in reducing fecal coliform bacteria. Additionally, LDEQ's staff will partner with the local stakeholders (dairy farmers), USDA and LDAF to implement Big Creek WIP and determine critical areas where additional BMP implementation may be necessary to reach water quality improvement.

6.2.2 Bogue Falaya and Abita Springs Watersheds



Local
Stakeholders

Louisiana 2010 IR – Bogue Falaya (040801) and Abita Springs (040804)

- Both subsegments are fully meeting PCR and SCR, but not meeting FWP designated uses.
- Suspected causes of impairment for both subsegments: mercury.
- Suspected sources of impairment for both subsegments: atmospheric deposition - toxics.

In FFY 2011, LDEQ's watershed coordinator, the Lake Pontchartrain Basin Foundation (LPBF) completed a WIP for Bogue Falaya and Abita Springs Watersheds and initiated its implementation. A significant task in the WIP is to describe historic, current and future water quality trends in these watersheds through monitoring. The objective of this water quality monitoring is to determine current conditions, identify pollution sources or reaches where water quality problems are prevalent and monitor water quality improvement that result from watershed implementation.

Bogue Falaya is a tributary of Tchefuncte River, which flows through St. Tammany Parish and drains a 135 square mile watershed, comprised of four (4) 12-digit HUCs.

Abita Springs is a tributary of Bogue Falaya River and drains a 63 square mile watershed, comprised of two (2) 12-digit HUCs. In FFY 2012, LPBF completed two (2) years of water quality monitoring in these watersheds, with 49 samples collected at ten (10) sites. Results indicated fecal coliform concentrations increased during these two (2) years of sampling. The high concentrations of nutrients observed in lower Abita River, led LPBF to investigate and identify two (2) regional wastewater treatment plants (WWTPs) and numerous individual homes sewage wastewater treatment systems as potential sources. Currently, St. Tammany Parish is working to regionalize its WWTPs intended to reduce water quality problems associated with waste waters.

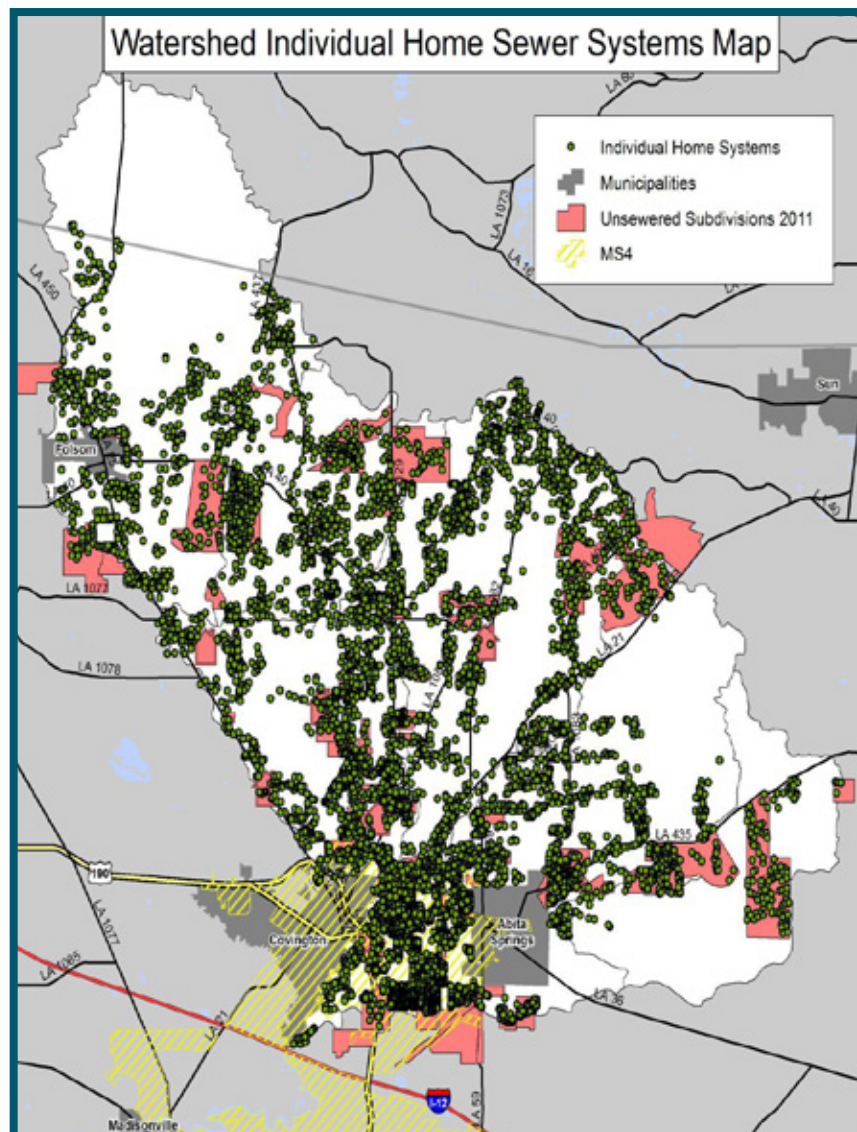


Figure 20. Homes on Individual Treatment Systems in the Bogue Falaya and Abita Springs Watersheds.

6.2.3 AerWay's No Till on Highly Erodible Agricultural Land



Kentwood &
Slaughter Co-ops
Agriculture
Producers and
Local Landowners

Capital RC&D, a watershed coordinator, entered into a cooperative agreement with LDEQ, in which CWA Section 319 funds were utilized to purchase three (3) pieces of AerWay pasture equipment. The equipment was placed in southeast Louisiana parishes, at two (2) Co-Ops in Kentwood and one (1) in Slaughter. The project area consists of some of the most highly erodible soils in the region. The objective of the project was to make this equipment available for landowners to rent so they could improve water quality in their watersheds. A landowner rental program was initiated in the fall of 2011. The program has included 42 participating landowners who have renovated approximately 2003 acres of highly erodible lands in Southeast Louisiana over a 12 month period. The AerWay equipment controls erosion on highly erodible lands and more efficient utilization of fertilizers (nutrient management).

Through USDA's revised universal soil loss equation (RUSLE2), an estimated reduction of 519 pounds of nitrogen, 129 pounds of phosphorus and potassium was achieved through this project, potentially improving water quality in these watersheds. The AerWay's equipment provided a 30 percent improvement in water infiltration and utilization of fertilizer. Soil erosion was estimated to be reduced by 15,623 tons per acre per year, by landowners changing their method of seed bed preparation from clean tillage to a reduced tillage process, resulting in top soil remaining on their fields rather than entering local water bodies. This project was completed in June 2012.



Figure 11. Aerway equipment in use on a local pasture.



Figure 12. Healthy vegetated pasture resulting from use of Aerway's equipment.

6.2.4 Selsers Creek Watershed



Louisiana DRAFT 2012 IR – Selsers Creek (040603)

- Not meeting PCR, SCR or FWP designated uses.
- Suspected causes of impairment: fecal coliform, total dissolved solid (TDS), lead, total phosphorus (TP), nitrate/nitrite (NO_3/NO_2), and low DO.
- Suspected sources of impairment: unknown sources and land development.

In FFY 2012, LDEQ's watershed coordinator, Capital RC&D, developed a WIP for Selsers Creek. Selsers Creek flows through Tangipahoa Parish in Lake Pontchartrain basin. The major land-uses in this watershed include forestry (55.5 percent), agriculture (23.8 percent), and urban/developed land (18 percent). Capital RC&D partnered with local officials, community groups, and concerned citizens to address issues surrounding urban sources of pollution. Through bi-monthly task force meetings, a list of NPS issues and concerns, as well as projects was prepared and prioritized for watershed implementation. In addition, preliminary ground work was completed to identify priority areas of NPS pollutants in the watershed. The WIP recommended BMPs for watershed implementation. LDEQ will work with USDA, LDAF and other stakeholders to implement the WIP to improve water quality.

In FFY 2012, monitoring for fecal coliform was initiated at five (5) sampling site locations in the creek. Four (4) critical areas have been identified and will be targeted in FFY 2013 for additional monitoring. In addition, in FFY 2013, a part-time inspector will be working closely with the Tangipahoa Parish Government and local Louisiana Department of Health and Hospitals (LDHH) staff to inspect individual home sewage treatment systems located in these critical areas in an effort to restore water quality to Selsers Creek. The additional sampling will determine if the efforts to upgrade and replace failing individual home sewage treatment systems is effective.

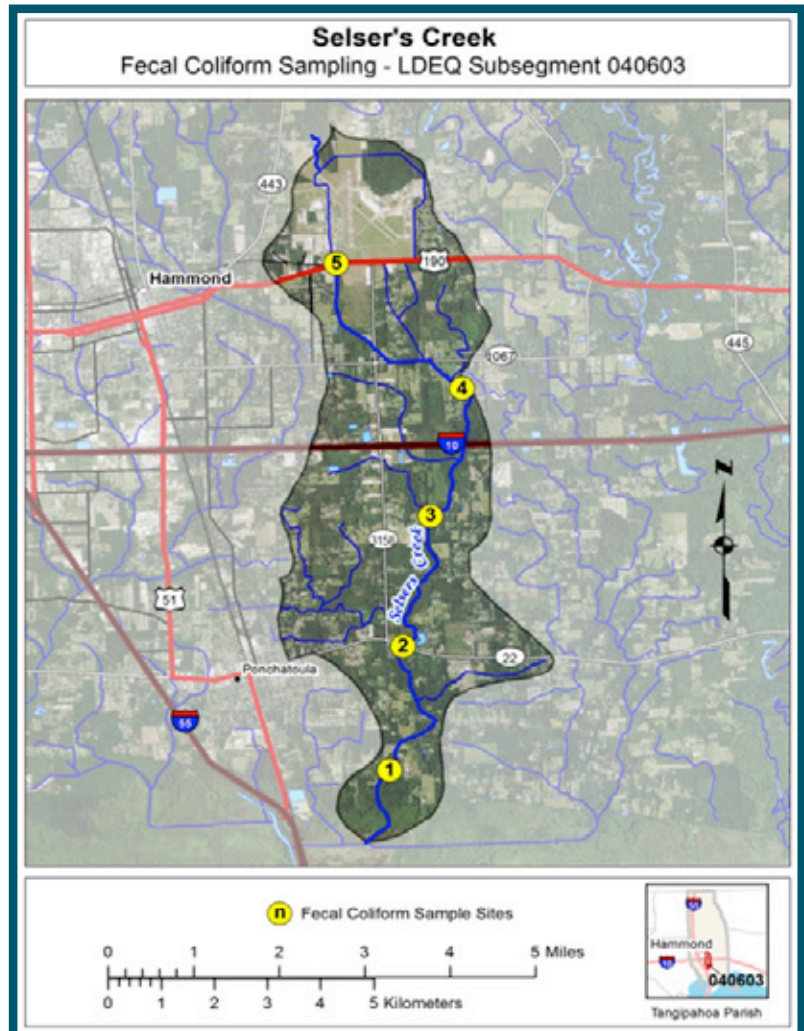


Figure 13. Sampling site locations for fecal coliform monitoring on Selsers Creek.

6.2.5 North Shore Watersheds



Louisiana DRAFT 2012 IR – Natalbany River (040503)

- Fully meeting SCR, but not meeting PCR or FWP designated uses.
- Suspected causes of impairment: fecal coliform, mercury and low DO.
- Suspected sources of impairment: onsite treatment systems.

In FFY 2011, LPBF began extensively monitoring water quality at 20 sites bi-weekly in Ponchatoula, Yellow Water, Tickfaw, Tangipahoa and Natalbany River watersheds for bacteriological indicators, nutrients, and physiochemical parameters. LPBF located pollutant sources in the watershed by conducting a watershed land-use reconnaissance survey and using Tangipahoa Parish GIS data layers. Field reconnaissance of land-uses, documented land-use types with photo documentation and GPS was compiled and mapped for comparison to LDEQ's land-use maps to ensure accurate characterization of the watersheds. In FFY 2012, LPBF provided outreach assistance to NPS dischargers and participated in educational outreach activities involving the communities along the watersheds on the water quality issues.

In FFY 2012, LDEQ's watershed coordinator, LPBF, developed a WIP for Natalbany River, which flows through Tangipahoa Parish, in Lake Pontchartrain Basin. This watershed has experienced rapid urban growth in the past decade. The major land-uses in this watershed included forestry and agriculture (90 percent). Through bi-monthly task force meetings, LPBF continues to partner with local officials, community groups, and concerned

citizens to address issues of NPS pollution. LPBF geocoded all individual home sewage systems to determine where clusters of homes may contribute to the problem. Through extensive monitoring and field reconnaissance work areas of high NPS pollutant concentrations have been identified in the watershed. In FFY 2013, LPBF will be working with LDHH and Tangipahoa Parish to inspection individual home sewage treatment systems starting with the areas with the highest fecal coliform concentrations.



Figure 14. Leah Latiolias and Ronnie Carter collecting a water sample in the North Shore watershed.

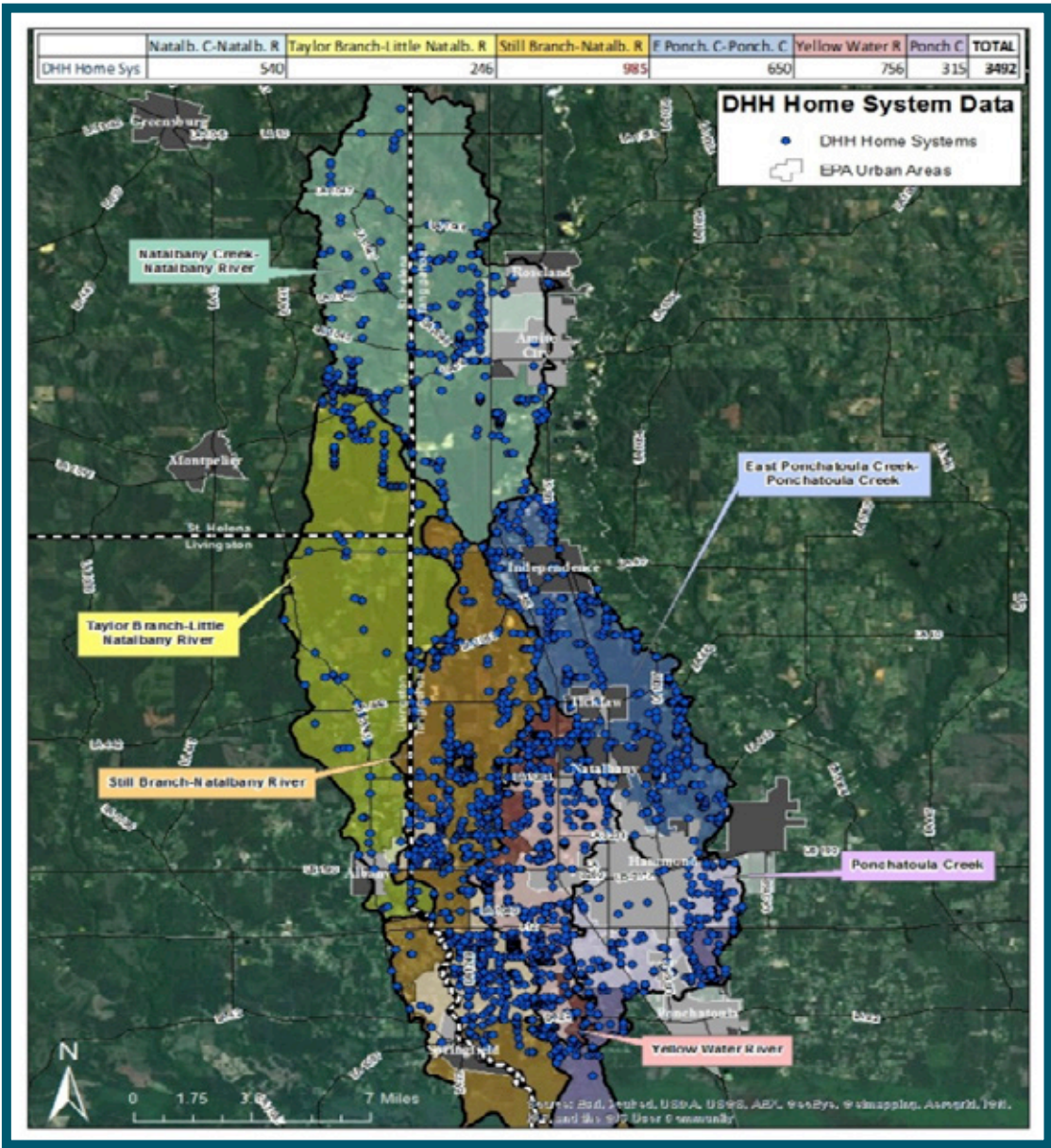


Figure 15. Map of individual home sewage treatment systems located in the Natalbany River watershed.

6.3 Ouachita River Basin

6.3.1 Lake St. Joseph Watershed



Northeast RC&D

Lake St. Joseph
Commission

Local Agriculture
Producers and
Landowners

Louisiana 2010 and DRAFT 2012 IR – Lake St. Joseph (081202)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: low DO, phosphorus, TSS, turbidity and NO_3/NO_2 .
- Suspected sources of impairment: agriculture and source unknown.

The Lake St. Joseph WIP was revised in FFY 2012, to include USEPA's nine key elements with assistance from watershed stakeholders, including LDEQ, Tensas-Concordia SWCD, NRCS, Louisiana State University (LSU) AgCenter, LDAF, Northeast Delta RC&D, Lake St. Joseph Commission and local agricultural producers. The lake is a 1580 acre oxbow lake located in Tensas Parish in the northeastern part of the state. Local agriculture producers indicated that the lake has dramatically been silting in over the past 35 years. The agricultural areas surrounding the lake, especially the fields directly adjacent to the lake, have been identified as high priority areas for BMP implementation. Most of the agricultural producers adjacent to the lake currently utilize conservation tillage techniques, in addition to Conservation Reserve Program (CRP) and Wetland Reserve Program (WRP) BMPs.

In February 2012, LSU AgCenter initiated monthly water quality monitoring at seven (7) sampling sites around the lake. The objectives of the project were to monitor the lake for DO, nutrients and sediment; identify dischargers that deliver NPS pollutants to the lake; and evaluate the effectiveness of BMPs implemented

by USDA and LDAF around the lake. LDEQ's historical mean DO concentrations were 7.5 mg/L and 5.04 mg/L for 1999 and 2006, respectively. Current DO mean concentrations from February to October 2012 were 7.99 mg/L, collectively for all seven (7) sites, indicating that the water quality in the lake may be improving and meeting the state's water quality standard at all (7) monitoring sites.

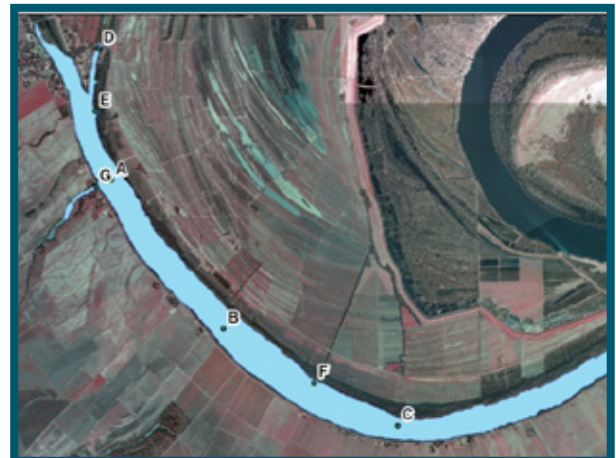


Figure 16. Sampling location sites for Lake St. Joseph monitoring project.



Figure 17. LSU AgCenter staff collecting samples from an automatic ISCO water sampler.

6.3.2 Tensas River Watershed- Vegetated Filter Strip-Retention Pond System



Local Agriculture
Producers and
Landowners

The LSU AgCenter is focusing on the Tensas River watershed to reduce NPS pollutants such as phosphorus, nitrogen and sediment at strategic locations to treat surface runoff from more than 570 acres of intensive agricultural land that drains to the river. In mid FFY 2012, LSU AgCenter planted approximately eight (8) square acres of vegetated filter strip consisting of bermuda grass and wheat adjacent to an existing retention pond vegetated with native aquatic plants. The design channels the runoff from surrounding agricultural fields through the filter strip allowing filtration to occur, and then to the retention pond for further pollutant removal. Pipe drops have been established at two (2) outlets of the pond to regulate water discharge draining to the Tensas River. Water quality sampling began at six (6) locations in September 2012. After rainfall events, water quality samples are retrieved from four (4) automatic ISCO samplers at the edge of the

fields and two (2) samples taken at retention pond outlets. The project is scheduled to end in June of 2013. The results obtained from the monitoring will be used to evaluate the effectiveness of the project design in reducing NPS pollutant loads to the river.



Figure 18. Installation of pipe drop BMP.



Figure 19. Automatic ISCO sampler setup in an agriculture field.



Figure 20. Aerial photo depicting project monitoring locations.

6.3.3 Mollicy Farms – Floodplain Restoration in the Upper Ouachita River Watershed



The Mollicy Farms Unit of Upper Ouachita National Wildlife Refuge is located along the east side of Ouachita River in Morehouse Parish. This site provides an excellent opportunity for floodplain restoration and reconnection to be implemented on a significant scale. Impairments on the Upper Ouachita River are low DO, nutrients and mercury in fish tissue. A TMDL developed for Upper Ouachita River Basin required a 30 percent reduction of oxygen-demanding substances and nutrients to meet DO water quality standards. Successful reconnection of Ouachita River to its historic floodplain could improve FWP, aquatic and terrestrial productivity, and reduce nutrient loads, especially nitrogen, to the Atchafalaya River Basin, and ultimately to the Gulf of Mexico beyond the Atchafalaya River delta. In concert with this restoration project, a multi-year water quality monitoring program was implemented to determine long-term trends in water quality, ecosystem services, and biological community conditions across the restored floodplain.

In FFY 2012, The Nature Conservancy (TNC) discovered a sediment-bearing plume, indicating that the site is still an active source of excess sediment to the Ouachita River. Sampling conducted to date, indicates the plume likely occurs only during the recession stage of a flood pulse. Flood recession is a time when numerous drainages discharge remaining waters through exit pathways. With this information, monitoring efforts in subsequent years could be focused on characterizing the nature and extent of these plumes. Additionally, an occurrence of sediment-rich waters exiting the site points to the importance of identification and implementation of hydrologic restoration actions within Mollicy Bayou watershed. Principally, such actions include restoration of natural flow paths and wetlands to ensure water exiting the site has sufficient residence time to allow sediment to deposit onsite before water exits Mollicy Farms to Ouachita River.



Figure 21. TNC staff conducting biological sampling within Mollicy Farms project site.



Figure 22. Sediment Plume on Ouachita River coming from the Mollicy Farms project site.

6.3.4 Bayou Louis and Lake Louis Watersheds



Lake Louis
Commission

Ouachita
Levee Board

Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Bayou Louis (080202) and Lake Louis (080203)

- Both bayou and lake are meeting PCR and SCR, but are not meeting FWP.
- Suspected causes of impairment:
Bayou Louis – mercury, sedimentation/siltation and turbidity and
Lake Louis – mercury and turbidity.
- Suspected sources of impairment for both the bayou and lake:
agriculture and atmospheric deposition.

In FFY 2012, LDEQ developed a WIP for Bayou Louis and Lake Louis. Bayou Louis is 20 miles long and flows from its headwaters at Lake Louis to Ouachita River. Lake Louis is a 435 acre lake. The majority of land in this watershed is in crop production. Bayou Louis and Lake Louis watershed is one of Louisiana's 40 priority watersheds, which has also been prioritized by USDA for NWQI. This watershed was also selected for monitoring through LDEQ's FFY 2012 Section 319 base funds. LDEQ's NPS staff participated in planning meetings with LDEQ's GIS specialist, hydrologist and a USDA representative to examine land-use maps and determine potential sites to be monitored in the watershed prior to conducting a reconnaissance survey. Water quality monitoring is scheduled to begin in 2013. LDEQ's NPS staff will begin developing and working with a local task force, consisting of stakeholders such as Lake Louis Commission, USDA, LDAF, Ouachita Levee Board, local police jury, Louisiana Department of Wildlife and Fisheries (LDWF) and local landowners to implement the Bayou Louis and Lake Louis WIP and improve water quality.



Figure 23. Bayou Louis proposed sampling site location.

6.3.5 MRBI Watershed Water Quality Monitoring in Bayou Lafourche



Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Bayou Lafourche (080904)

- Fully meeting SCR, but not meeting PCR or FWP designated uses.
- Suspected sources of impairment of FWP use: TSS, turbidity, DO, 2,3,7,8 tetrachlorodibenzo-p-dioxin and 2,3,7,8 tetrachlorodibenzofuran.
- Suspected sources of impairment of PCR use: fecal coliform.
- Suspected causes of impairment of FWP uses: crop production, rangeland grazing, sewage discharges in unsewered areas and industrial point sources.

In FFY 2011, through the MRBI initiative, NRCS has been working with agriculture producers and landowners to implement voluntary conservation practices in small priority watersheds of the Mississippi River Basin in an effort to improve water quality. Three (3) 12-digit HUCs in Bayou Lafourche were chosen as one of Louisiana's focus areas. BMPs implemented through this initiative are designed to reduce nutrient, TSS and turbidity impairments in Bayou Lafourche.

In FFY 2012, University of Louisiana at Monroe (ULM) started conducting in-stream water quality monitoring at multiple sites in the three (3) 12-digit HUCs on a weekly basis and biological sampling semiannually. Preliminary results indicated low DO concentrations possibly relating to increased temperatures. Following rainfall events water quality data indicated higher levels of TP, solids, turbidity and fecal coliform. Benthic invertebrate collections were conducted on June 6 and 8, 2012 and fish collections were conducted on June 11, 2012.

Results from this project will be included in Louisiana's NMS and in discussions with USDA and stakeholders implementing WIPs in Ouachita River Basin. Once appropriate BMPs are implemented and monitoring results are evaluated, the water body may be delisted for DO and other parameters targeted in this project. A success story will be prepared based on water quality improvements and/or delisting of the water body for targeted parameters.



Figure 24. ULM students conducting biological sampling on Bayou Lafourche.



Figure 25. Agriculture field located in the Bayou Lafourche watershed.

6.3.6 MRBI Watershed Water Quality Monitoring in Turkey Creek



Franklin Parish

Local Agriculture
Producers and
Landowners

Louisiana draft 2012 IR – Turkey Creek /Big Creek (080905), Turkey Creek (080906) & Turkey Creek Lake (080907)

- 080905 & 080907 are fully meeting all designated uses.
- 080906 is fully meeting PCR & SCR, but is not meeting FWP.
- Suspected causes of impairment of FWP use for 080906: low DO.
- Suspected sources of impairment of FWP use for 080906: irrigated crop production.

In FFY 2011, through the MRBI initiative, NRCS has been working with agriculture producers and landowners to implement voluntary conservation practices in small priority watersheds of the Mississippi River Basin in an effort to improve water quality. Four (4) 12-digit HUCs in Turkey Creek were chosen as one of Louisiana's focus areas. BMPs implemented through this initiative are designed to reduce organic and sediment loads in Turkey Creek. BMPs have been funded through LDAF Section 319 incremental funds and USDA Farm Bill Program cost assistance. In addition, \$1.5 million has been allocated to Franklin Parish through Community Development Block Grant (CDBG) Disaster Recovery Program to restore and improve hydraulic capacity to the Turkey Creek watershed. This project will involve removing sand bars, obstructions and restoring capacity to approximately 12.3 river miles of Turkey Creek.

On January 22, 2013, the QAPP was approved. ULM will start conducting in-stream water quality monitoring in February of 2013, at 11 monitoring sites in the four (4) 12-digit HUCs on a weekly basis and biological sampling semiannually.

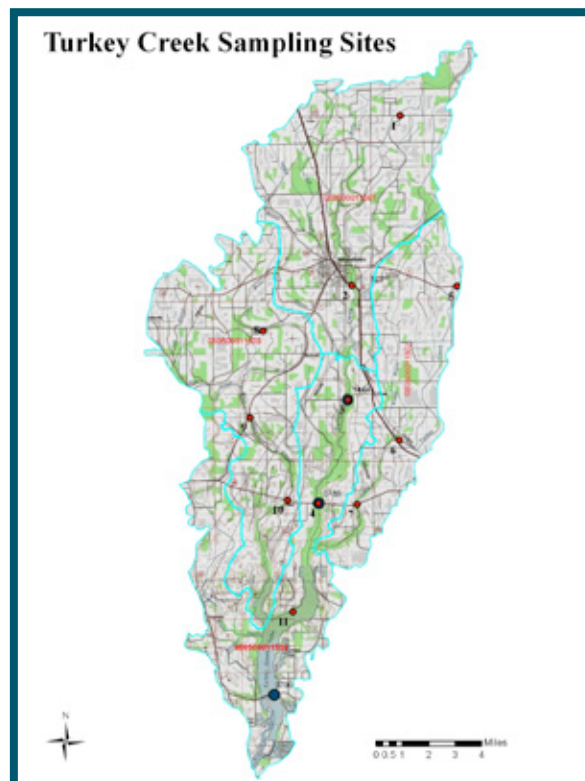


Figure 26. Turkey Creek sampling sites.

6.3.7 Bayou Desiard Watershed



Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Bayou Desiard and Lake Bartholomew (080701)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: low DO and mercury.
- Suspected sources of impairment: impacts from hydrostructure, flow regulation modification and atmospheric deposition,

Bayou Desiard and Lake Bartholomew flow through the City of Monroe in northeast Louisiana. Bayou Desiard is one of several drinking water sources for Monroe. The bayou does not receive discharges from WWTPs, but receives NPS and storm water runoff associated with adjacent homes, businesses, recreational areas, and agricultural and pasture lands. The objective of this project was to identify specific sources and locations of NPS pollutant loads to the bayou through water quality monitoring, implement BMPs to improve water quality and determine the effectiveness of the BMPs through additional water quality monitoring.

In FFY 2011, water quality monitoring was completed, indicating several potential locations where BMPs are needed. One sampling site indicated that a significant amount of sediments was being introduced into the watershed. In FFY 2012, a grade stabilization structure was installed on a farm near the sampling site through collaboration with NRCS and LDAF to reduce sedimentation. Water quality monitoring began in September 2012 to determine the effectiveness of the BMP installed and will continue through September 2013.

In addition, the project, which includes an aggressive education outreach campaign, has been underway in the watershed since the beginning of the project, which include such activities as: three (3) Bayou Clean Up Events assisted by Northeast Delta RC&D, ULM Toxicology Club, Biology Club, Radiology Tech Club and Nursing; NPS workshops were presented to local public schools; telephone surveys were conducted with homeowners; over 1,000 brochures were distributed in 12 neighborhoods and to 17 businesses; storm drain markings were installed; interviews were given to local newspapers and radio stations which highlighted water quality monitoring and NPS pollution; ten (10) Drinking Water Protection Area signs were placed around the bayou.

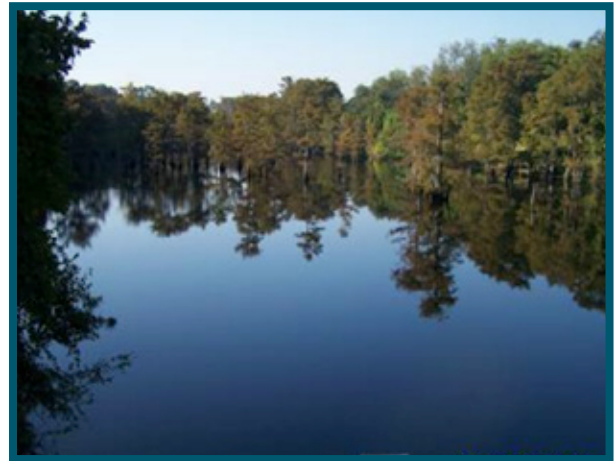


Figure 27. Bayou Desiard.



Figure 28. Dr. Kevin Baer teaching water quality monitoring to local students.

6.3.8 Brushy Bayou and Walnut Bayou Watershed



Northeast Delta
RC&D

Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Brushy and Walnut Bayous (081201)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: low DO, TSS, turbidity, Carbofuran, dichlorodiphenyltrichloroethane (DDT) and Toxaphene.
- Suspected sources of impairment: irrigated and non-irrigated crop production.

Brushy Bayou and Walnut Bayou are sub-basins within the Tensas River Watershed. These bayous represent 27,850 acres comprised of agricultural land, forested wetlands and a portion of the City of Tallulah. Once over 90 percent forested during the 1960's and 1970's, today much of the forestland has been cleared and drained to provide cropland acreage for food and fiber production. Currently, approximately 72 percent is agriculture and 19 percent is wetland forest. This conversion to cropland has resulted in the imputation of excessive nutrients, sediments and silt into the bayou system, effectively impairing the natural processes and hydrology of the system.

In FFY 2011, Northeast Delta RC&D organized a stakeholder group, which includes NRCS, LDEQ, LSU AgCenter, Tallulah Beautification, Louisiana Tourism, SWCDs, USACE, USEPA, and local farmers and residents. In FFY 2012, the stakeholder group guided and directed the development of a WIP to restore these bayous.

Northeast Delta began water quality monitoring bi-monthly at seven (7) sites in May of 2011. The objective was to determine water quality impairments from NPS pollution in the watershed. To date, 66 sampling events have been conducted. TP and orthophosphate levels were elevated at all sites. DO levels were below standards from March through August and meeting standards in October and November. Turbidity, TSS and fecal coliform levels were elevated at all sites during the sampling period. Excessive soil erosion has been identified as one of the leading causes of water quality impairment in the watershed. To reduce soil deposition, annual sediment loads from agricultural fields must be reduced by 68 percent through proper implementation of agricultural BMPs.



Figure 29. Heavy agriculture runoff during rain events.

6.3.9 Lower Joe's Bayou Watershed



Northeast Delta
RC&D

Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Lower Joe's Bayou (081002)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: Carbofuran, DDT, low DO, TSS and turbidity.
- Suspected sources of impairment: irrigated and non-irrigated crop production.

Lower Joe's Bayou watershed is located in northeast Louisiana and is 78 miles long incorporating approximately 26,020 acres almost entirely within Madison Parish. The bayou drains approximately 20,588 acres of cultivated crop land and 4,585 acres of mixed forest/woody wetlands consisting of a mainly rural area. There are approximately 30 producers in the watershed averaging 600 acres per farm. During the 2012 growing season, approximately 7,205 acres of the watershed were used for soybeans, 11,323 acres for corn, and 2,058 acres for cotton.

Based on a TMDL for TSS, turbidity and siltation a 74 percent reduction between January and June is required to meet the numeric turbidity standard of 50 NTU and the target TSS value of 40 mg/L. In FFY 2012, a WIP was developed for Lower's Joe's Bayou that outlines an implementation plan to reduce the amount of NPS pollution entering the bayou in order to restore water quality and FWP designated use. The plan identified row-crop agricultural contributions to pollutant loads of chemical, mineral, and biological elements to waterways that both suppress DO and increase levels of TSS, turbidity, and selected pesticides.

Over the past 10 years, LDAF has provided Section 319 incremental funds and USDA has provided Farm Bill funds to partner with landowners and producers to implement site specific agriculture BMPs to reduce sediments and pesticides from entering Joe's Bayou. ULM started collecting water quality data bi-monthly on January 14, 2012 to determine the effectiveness of BMPs implemented. Results to date indicate that TP and orthophosphate levels were elevated at all sites in all sampling events. DO values began declining below guideline values in April and remained low at most sites through September. Turbidity, total solids, TSS, and TDS levels appear to be decreasing while water clarity appears to be increasing from late winter to late spring. Nutrients (ammonia, nitrate, nitrites) and phosphates were generally elevated during spring months. Joe's Bayou watershed monitoring project is scheduled to be completed on June 30, 2013.

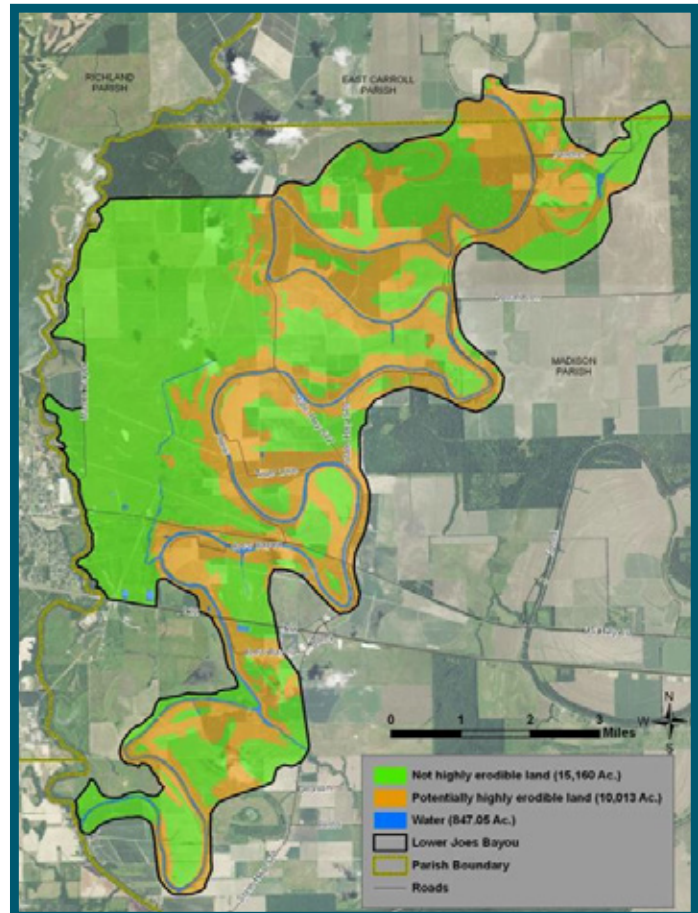


Figure 30. USDA-NRCS highly erodible land classification map.

6.4 Vermilion-Teche River Basin

6.4.1 Bayou Teche Watershed



UNIVERSITY
of
LOUISIANA
Lafayette

Louisiana 2010 IR – Bayou Teche (060301 and 060401)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: Carbofuran, NO_3/NO_2 , low DO, TP.
- Suspected sources of impairment: irrigated and non-irrigated crop production and municipal point source discharges.

Bayou Teche, located in south-central Louisiana is a rural watershed including approximately 788,000 acres of cropland, pastureland, urban areas, wetlands, and woodlands. From January 2012 through December 2012, University of Louisiana at Lafayette (ULL) collected in-stream water quality data at 15 locations, bi-monthly, at major inlets and outlets along the entire Bayou Teche waterway, providing valuable baseline data.

In addition to the water quality data, ULL has built a GIS database of land cover information, has defined the spatial relationships correlating water quality concentrations and specific land cover types by sub-basin, and completed a GIS database development for land cover and normalized vegetation difference index data. This information will provide a clearer understanding of surface water quality dynamics in the bayou.

A final report will be provided to LDEQ in January of 2013. The report will include an analysis of flow conditions, NPS pollutant concentrations by sub-basin, land cover classifications by sub-basin, and initial land use-water quality correlation analyses. This information will be included in a WIP revised by NPS staff and stakeholders.

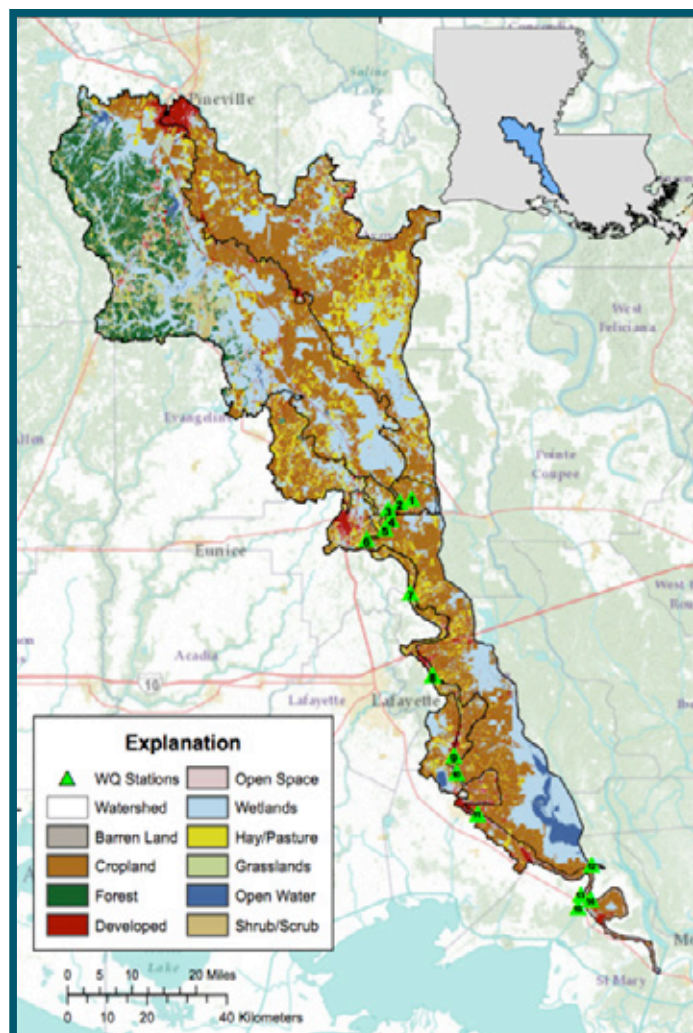


Figure 31: Water quality monitoring sites in Bayou Teche watershed.

6.5 Mermentau River Basin

6.5.1 Bayou Queue de Tortue Watershed



Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Bayou Queue de Tortue (050501)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: Fipronil, mercury in fish tissue, NO_3/NO_2 , low DO, TP, sedimentation/siltation, TDS, TSS, and turbidity.
- Suspected sources of impairment: irrigated and non-irrigated crop production, atmospheric deposition, and flow alterations from water diversions.

Bayou Queue de Tortue watershed is 305 square miles and 56 miles in length. The majority of the watershed consists of agricultural crops such as rice, soybeans, pasture and a small amount of sugarcane. The bayou has been heavily hydromodified for approximately 30 miles through the middle reaches while the upper and lower reaches have been largely undisturbed swamps. In addition, eroding, unstable spoil banks have caused a large amount of clay fines to be suspended in the water column, resulting in increased turbidity in the bayou.

Bayou Queue de Tortue has been selected as one of LDEQ's 40 priority water bodies and is also included in LDEQ's CWA319 FFY2012 Work Plan for water quality monitoring. In FFY 2012, LDEQ revised a WIP for Bayou Queue de Tortue, which outlined BMPs that should be implemented to reduce turbidity, nutrients, and TSS during the spring discharge of muddy waters from rice fields. Watershed

modeling indicates rice field discharges after mudding in and planting represent more than 60 percent of NPS pollutant loads in this watershed. LDEQ is working with USDA and LDAF to implement the WIP through CWA Section 319 incremental funds and USDA NWQI and GOMI funds. For example, in the Vermilion SWCD, a local farmer enrolled 1,083 acres incorporating practices such as managed field borders and residue management. By sweeping the residue into the furrows instead of burning, he will incorporate three (3) tons of residue into the soil to build organic matter and provide a soil cover for winter crops. Additionally, using a grassed cover year round will reduce soil erosion and trap sediment, thereby improving water quality. LDEQ will monitor effectiveness of watershed implementation to determine water quality improvement in Bayou Queue de Tortue. Sampling is expected to begin in early 2013.



Figure 32. Bayou Queue de Tortue.

6.5.2 MRBI Watershed Water Quality Monitoring in Bayou Chene and Bayou Lacassine



UNIVERSITY
LOUISIANA
Lafayette

Local Agriculture
Producers and
Landowners

Louisiana 2010 IR – Bayou Chene (050603) and Bayou Lacassine (050601)

- Both bayous fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected causes of impairment: Bayou Chene - Fipronil, lead, mercury and low DO, and Bayou Lacassine - lead, mercury and low DO.
- Suspected sources of impairment: Bayou Chene - irrigated & non-irrigated crop production, atmospheric deposition, and Bayou Lacassine - irrigated crop production, managed pasture grazing & natural conditions.

Bayou Chene and Bayou Lacassine flow through the Mermentau River Basin. Both were chosen as focus areas for USDAs MRBI project to implement BMPs addressing nutrient loads that affect local and gulf coast waters. In Bayou Chene, the primary land-use in the watershed is agriculture, particularly rice and soybeans. Irrigation of rice and other crops can have a significant impact on water quality in this basin. The Bayou Lacassine watershed is sparsely populated and is primarily utilized for agricultural production, including rice, soybeans, pasture, and sugarcane.

In June of 2012, ULL started conducting water quality monitoring on a weekly basis at four (4) sampling locations in the Bayou Chene watershed and five (5) sampling locations in Bayou Lacassine watershed. Biological samples are collected twice a year (May-June and September-October) and analyzed for species diversity and abundance.

The objective is to evaluate the effectiveness of BMP implementation in improving water quality. Additional BMPs will be implemented in high priority areas as indicated by the water quality data results. Thus far, the water quality monitoring data in Bayou Chene shows relatively higher turbidity, TSS, TDS and DO values compared to data in Bayou Lacassine. Nitrate-N values for all monitoring locations in both watersheds were quite low.



Figure 33. ULL students collecting water quality samples off of a bridge in the watershed.

Parameters	Bayou Chene	Bayou Lacassine
Turbidity	101.7 to 124.1 NTU	29.6 to 71.6 NTU
TSS	43.6 to 74.4 mg/L	19.6 to 39.8 mg/L
TDS	162.5 to 209.5 mg/L	131.5 to 201.5 mg/L
DO	2.1 to 3.6 mg/L, except for Bayou Chene upstream site 4 value of 5.5 mg/L	

Table 8. Average monitoring value ranges from June 2012 through December 2012.

6.6 Calcasieu River Basin

6.6.1 Indian Bayou Watershed



Louisiana 2010 IR – Indian Bayou (030805)

- Not meeting PCR, SCR and FWP designated uses.
- Suspected causes of impairment: low DO and fecal coliform
- Suspected sources of impairment: on-site treatment systems and unpermitted discharge, flow alterations from water diversions and irrigated and non-irrigated crop production.

FFY 2012, LDEQ revised a WIP for Indian Bayou in Calcasieu River Basin to include USEPA's nine key elements. Indian Bayou watershed includes approximately 8,715 acres (26.66 percent) in pasture or hay fields; 15,040 acres (48.77 percent) in deciduous and evergreen forests; and 889 acres (0.1 percent) in aquaculture/rice and soybeans. The watershed consists of individual home sewage treatment systems as the primary type of waste treatment for residents. An Annualized Agricultural Nonpoint Source (AnnAGNPS) model identified areas of high NPS sediment, nutrient and organic loads in the area of the watershed where aquaculture and rice fields exist. However, areas with pastures and forests also indicated high sediment and nutrient loads contributing to NPS pollutants to Indian Bayou. The revised WIP includes BMPs recommended to improve water quality in the watershed. In FFY 2012, LDEQ submitted a proposal to USEPA

Region 6 to conduct additional water quality monitoring at the 12-digit HUC scale in order to evaluate the effectiveness of BMPs implemented; determine critical areas that may exist; and recommend additional BMPs needed through LDAF Section 319 incremental funds and Farm Bill Programs by landowners in the watershed. In FFY 2013, LDEQ will continue to work with USDA, LDAF and other stakeholders to implement the WIP.

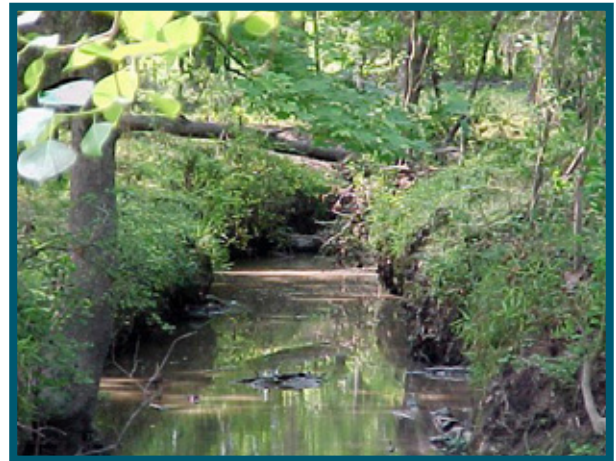


Figure 34. Forested area in Indian Bayou.



Figure 35. Pasture land along Indian Bayou.

6.6.2 Marsh Bayou Watershed



Louisiana 2010 IR – Marsh Bayou (030603)

- Fully meeting PCR and SCR, but not meeting FWP designated use.
- Suspected cause of impairment: low DO.
- Suspected source of impairment: irrigated & non-irrigated crop production & natural conditions.

Note: fecal coliform has consistently come on and off the impaired list.

In FFY 2010, LDEQ revised a WIP for Marsh Bayou to address USEPA's nine key elements. Marsh Bayou is located in the Calcasieu River Basin in southwestern Louisiana. Ambient water quality DO levels in the bayou are often below the state's water quality standard of 5.0 mg/L. A 2001 TMDL for oxygen demanding substances recommend a 67 percent load reduction of NPS pollutants to meet water quality standards during critical conditions. The watershed has been characterized as rural consisting mostly of

forestry and agricultural land. Over the years, extensive silviculture has occurred throughout the watershed with many sites having been converted to agriculture. The watershed is also characterized by higher peak flows after rain events and extremely low flows during non-rain periods. Forestry impacts from old access roads, clear-cutting of trees and removal of riparian areas contribute to NPS loading in the watershed. Lack of shading along the stream from excessive harvesting of trees and increased water temperatures have resulted in low DO within the stream.

An AnnAGNPS model indicates a ridge extending across the watershed from east to west exhibits a high potential for soil erosion, as high as 1.032 tons per acre per year. The model estimates a similar pattern with nitrogen, phosphorus, and organic carbon loading.



Figure 36. Area in watershed with trees and riparian area removed contributing to low DO in Marsh Bayou.

In FFY 2011, LDEQ's NPS staff prioritized Marsh Bayou for water quality sampling in order to determine critical areas in the watershed. The sampling was conducted from June 1, 2011 through May 31, 2012. The water quality data indicates a bacteria problem throughout the watershed; however, there was no clear source to the NPS pollution. Nutrient concentration values are NO₃/NO₂ - <0.05 mg/L, TKN - <2 mg/L, and TP - <0.5 mg/L, consistent or lower than ambient values collected in 2008/2009. The results indicate that the DO problem may be more related to flow or lack thereof than NPS runoff. In FFY 2013, further investigation will be conducted.

6.7 Pearl River Basin

6.7.1 Little Silver Creek Watershed



Louisiana 2010 IR – Little Silver Creek (090503)

- Fully meeting SCR and FWP, but not meeting PCR designated use.
- Suspected cause of impairment: fecal coliform.
- Suspected sources of impairment: unpermitted discharge and wildlife.

In FFY 2012, LDEQ's NPS staff developed a WIP for Little Silver Creek. The creek is located in the Pearl River Basin in southeastern Louisiana and has been identified as one of LDEQ's 40 priority watersheds. A 2010 TMDL analysis for fecal coliform for Little Silver Creek indicates a 68 percent load reduction during winter months and 98 percent during summer months to achieve the water quality standard. The dominant land uses in this watershed include forestry and agriculture. Approximately 56.4 percent is forestry and 42.6 percent agriculture, which is primarily in pasture or hay. Little Silver Creek WIP notes priority areas during a watershed tour with NPS staff and local SWCD staff of dairy lagoons no longer in use requiring waste structure impoundment closure and gullies formed where agriculture fields have been clean tilled and corn fields planted too close to drainage ditches proposing BMP installation of filter strips to prevent pollutants from entering the water bodies. In FFY 2012, LDEQ submitted a proposal to USEPA Region 6 to conduct additional water quality monitoring at the 12-digit

HUC scale in order to evaluate the effectiveness of BMPs implemented; determine critical areas that may exist; and recommend additional BMPs needed through LDAF Section 319 incremental funds and Farm Bill Programs by landowners in the watershed. In FFY 2013, LDEQ will continue to work with USDA, LDAF and other stakeholders to implement the WIP.



Figure 37. Little Silver Creek.



7.0 Statewide Programs

Louisiana's NPS Management Plan included a set of milestones for each of the major categories of NPS pollution (agriculture, forestry, urban, individual sewage systems, construction, hydromodification and resource extraction). During FFY 2012, Louisiana focused its activities and reported on progress in meeting these milestones for agriculture, individual home sewage systems and urban storm water runoff within the watershed specific sections of the NPS annual report. Statewide activities for the coastal NPS program, forestry, construction, hydromodification have been reported in this section of the annual report.

7.1 Louisiana's Coastal Nonpoint Source Control Program Coastal Nonpoint Pollution Control Program (CNPCP) Annual Report



As of June 7, 2012, Louisiana's coastal zone boundary was updated according to the recommendations of a science-based study required by the Louisiana Legislature in 2009. The science-based boundary takes into account environmental changes that occurred since the initial boundary was established in 1978. The study used updated information on geology, elevation, soil type, vegetation, storm surge, observed and predicted subsidence/sea level rise, and boundaries of existing coastal programs to identify areas with a high level of coastal influence.



In May 2012, the Louisiana Legislature passed House Bill 656 which adjusted the inland boundary of the Louisiana coastal zone consistent with the recommendations of the science-based study. On June 7, 2012, Governor Jindal signed Act 588 which put the updated coastal zone into effect. In this area, conservation of coastal resources is balanced with the needs of economic development. It is important to note that Act 588 does not establish or require any new regulations or exemptions; it merely applies the pre-existing program to a shifted coastal area. The new boundary resulted in a net increase of 1887 square miles, or 12.6 percent, in the coastal zone area. These changes help to ensure consistency of permitted activities with Louisiana's Comprehensive Master Plan for a Sustainable Coast.



The coastal zone area was increased in eight (8) parishes (Cameron, Calcasieu, Iberia, St. Martin, St. Mary, Terrebonne, Lafourche, and Assumption), was reduced in two (2) parishes (Tangipahoa and Livingston) and remained the same in ten (10) parishes (Vermilion, St. John, St. James, St. Charles, Jefferson, Plaquemines, Orleans, St. Bernard, St. Tammany, and Ascension).



Agriculture:

In FFY 2012, the CNPCP continued to work with its stakeholders, other state agencies, and agency state and federal partners to implement the management measures of this category through the NPS watershed implementation programs.



Forestry:

In FFY 2012, the CNPCP continued to partner with stakeholders, other state agencies, and federal partners to implement coastal forestry management measures in Louisiana. One example of interagency coordination in FFY 2012 included Louisiana's Coastal Forest



Figure 38. Louisiana's new coastal boundary map updated June 7, 2012.

Conservation Initiative (CFCI). CPRA partnered with state agencies, non-governmental organizations (NGOs) and private landowners to review tracts of coastal wetland forests for inclusion in CFCI. A total of 64,297 acres of forested properties were submitted for the first round of CFCI, consisting of 20 landowners and 27 properties. Approximately 34,357 acres of coastal wetland forests have been acquired through fee title or servitude, and another 3,226 acres are expected to be acquired early in 2013.

The largest acquisition (29,630 acres) was in Blind River watershed in Lake Pontchartrain Basin, acquired in March 2012, with Coastal Impact Assistance Program (CIAP) and Louisiana Wildlife and Fisheries Foundation (LWFF) funds. An article in the Times-Picayune (www.nola.com/environment/index.ssf/2012/03/maurepas_swamp_wildlife_manage.html) described the property, which was incorporated into the Maurepas Swamp Wildlife Management Area (WMA), connecting two (2) formerly noncontiguous halves of properties there. One of the criteria for ranking tracts of lands for inclusion in CFCI were properties adjacent to water bodies impaired for FWP, and designated as Outstanding Natural Resource (ONR) waters. The Blind River property received the highest score possible because it included Blind River and Amite River Diversion Canal, both of which are classified as ONR waters and as not meeting FWP. This area is in the drainage area of some of the most rapidly developing suburban areas surrounding Baton Rouge, with a high rate of land-clearing and wetland loss. This property was also ranked high because of threats of conversion, primarily to development but also to logging. Acquisition of this property prevents further planned development along the north side of Amite River Diversion Canal and facilitates the state's Amite River Diversion Canal Gapping project which should help improve forest health and water quality in the watershed. This property provides valuable storm water and storage benefits, as well as protection from tropical storms and hurricanes to communities that are inland of the swamp and have no structural protection.

Another conservation servitude was recently finalized for a coastal forested wetland tract along Bayou Sale in Lower Vermilion-Teche Basin. The Bayou Sale tract is approximately 4,726 acres of forested swamp and bottomland hardwood along Bayou Sale and the Gulf Intercoastal Waterway (GIWW) in St. Mary Parish. Description from the appraisal report: "...once this easement is in place, the owner will

essentially retain all of the land use rights currently enjoyed except for the right to harvest, alter or destroy any of the trees on the site, assuring its protection as a refuge for several species of animals and saving the trees from logging, which provides for long-term protection of nearby communities from hurricane storm surge and wind.”

Bayou Sale and GIWW are on or adjacent to the property. The GIWW from New Iberia Southern Drainage Canal to Bayou Sale was categorized as not meeting FWP in the state’s 2010 IR. Most of this forest is outside the levees and not hydrologically connected to Bayou Sale, but to GIWW. Although agricultural areas of the property adjacent to the bayou are not included in the servitude, the landowner has expressed interest in possibly restoring these portions of the property to forested habitat. United States Geological Survey (USGS) forest experts from the National Wetland Resource Center (NWRC) recently evaluated the swamp forest on this property and said it was the southernmost tract of regenerating bald cypress swamp in Louisiana.

CPRA is currently in final negotiations on two (2) other properties, which are not yet final, but are in Livingston and St. Mary Parishes, as described below.

Livingston Parish – a fee title acquisition of 1,844 acres of forested land adjacent to King George Bayou near French Settlement in Lake Pontchartrain Basin. The land is primarily baldcypress-tupelo swamp intermixed with pockets of mature bottomland hardwoods and grades to mixed pine/hardwood forest that is upland and in a rapidly developing area. This is a very healthy, regenerating forest of mixed pine/hardwoods, adjacent to Amite River, which is impaired and has a TMDL developed for it. Intact forests provide storm water storage and tropical storm impact reduction benefits. Also due to the gradation of habitats into upland forest, pathways are preserved for species and habitat migration with climate change and sea level rise. These upland/wetland interface habitats are critical and scarce.

St. Mary Parish – a servitude on approximately 1,382 acres of state and a globally rare salt dome hardwood forest. This is the highest quality, least altered salt dome forest remaining in Louisiana and over 200 years old. It is also an USEPA Great Environmental Moments in Science (GEMS) site that is adjacent to the same section of GIWW as the Bayou Sale property. This land is also adjacent to Cote Blanche Bay, which was meeting all of its uses except oyster propagation on the state’s 2010 IR. Preservation of this property is primarily for its habitat value.

Three (3) public meetings were held from July 24-July 31, 2012, to provide information on the second application period for the CFCI program, including:

- Tuesday, July 24: Baton Rouge – Louisiana Department of Wildlife and Fisheries (LDWF)
- Thursday, July 26: Abbeville - LSU AgCenter
- Tuesday, July 31: New Orleans - New Orleans Regional Transportation Management Center

Urban Areas:

The LDNR Office of Coastal Management (OCM) and parish Local Coastal Programs (LCP) have authority to include BMPs and NPS conditions in permits. These conditions prevent and reduce NPS pollution in the state’s coastal waters. The three (3) types of permits authorizations issued by LDNR’s OCM or LCP are: 1) a determination that the activity is exempt or has No Direct and Significant Impact (NDSI) on coastal waters (NDSI), 2) General Permits (GPs), and 3) individual Coastal Use Permits (CUPs).

7.1.1 Site Development

In FFY 2012, 14 Individual CUPs were issued by the OCM that were listed as Industrial/Commercial or Residential Development. All of these permits required a Subdivision Information Packet and a Drainage Impact Study each address runoff.

In addition, GPs issued by OCM contain operating conditions (OCs) and standard conditions (SCs) to address the following categories and management measures:

GP's	Category	Management Measure
5,6,7,8,10,11,12,13,14,15,16,17,18,20,23	Hydromodification	Channelization and Channel Modification
5,6,7,10,11,13,15,16,17,20,23	Hydromodification	Streambank and Shoreline Erosion
18,19,21	Urban Runoff	New development
18,21	Urban Runoff	Watershed Protection
18,19,20	Urban Runoff	Site Development
18,	Urban Runoff	Existing Development
18,	Urban Runoff	OSDS
5,14,20	Urban Runoff	Roads, Highways, & Bridges

Examples of the OC and SC required to be compliant with are as follows:

OC – G. The applicant/Permittee shall insure that all sanitary sewage and/or related domestic wastes generated during the subject project activity and at the site, thereafter, as may become necessary shall receive the equivalent of secondary treatment (30 mg/L BOD₅; 30 mg/L TSS) with disinfection prior to discharge into any of the streams or adjacent waters of the area, or in the case of total containment, shall be disposed of in approved sewerage and sewage treatment facilities, as is required by the State Sanitary Code. Such opinion as may be served by those comments offered herein shall not be construed to suffice as any more formal approval(s) which may be required of possible sanitary details (i.e. provisions) scheduled to be associated with the subject activity. Such shall generally require that appropriate plans and specifications be submitted to LDHH for the purpose of review and approval prior to any utilization of such provisions.

OC – I. All activities, involving any discharge of pollutants, must be consistent with applicable water quality standards and any necessary permits issued through LDEQ.

GP5 SC – D. Board roads constructed under the authority of the GP shall meet all of the following specifications, in addition to the conditions specified in subsection C of Section V. Special Conditions, unless it is determined through the Geologic Review Process that such conditions would cause significant adverse environmental impacts: (1) height of the road shall not exceed 5 feet above mean sea level, or 3 feet above adjacent ground, whichever is less; (2) maximum width of the base of the board road (i.e., toe-of-slope to toe-of-slope) shall not exceed 40 feet; (3) maximum width of the borrow pits shall not be greater than 30 feet at the surface, and maximum distance between the inside bank of the borrow pit and the toe of the road shall not be more than 20 feet; (4) borrow pits for roads dredged under the authority of this GP shall be discontinuous and shall have a maximum length of three 300 feet. The borrow pits shall be staggered on alternating sides of roads whenever feasible and practical. If the pits dredged under that authority of this GP are not staggered on alternating sides of the road, gaps (i.e.,

undredged areas) at least 50 feet in length shall be left between the 300-foot long segments of borrow pits. In no case shall borrow pits dredged under the authority of this GP connect to existing borrow pits. Gaps of at least 50 feet in length shall be left between newly dredged borrow pits and existing borrow pits. Culverts or bridge openings shall not be installed through road fill to connect staggered segments of the pits. Culverts and/or ditches shall not be installed to connect sections of discontinuous borrow pits along one side of the road; and five (5) culverts shall be installed through the road fill at least every 250 feet and at the crossing of any creeks, streams, sloughs, and other water bodies. Culverts shall provide a minimum of 452 square inches of cross-sectional flow area, but must be of sufficient size to convey normal flows. Culverts shall be installed at elevations to approximate pre-project flow conditions and shall not be installed to promote the drainage of wetlands or to impede wetland flooding. Bridges with clear openings at least six (6) feet wide may be substituted for culverts. Culvert openings and bridges shall be periodically maintained and cleaned of debris to allow for free flow of water.

More information on the actual language of the OCM GPs can be found on the web at:
<http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=728>

Below is a summary table and location map for issued GPs in FFY 2012.

CMD GP - 5	8
CMD GP - 6	305
CMD GP - 7	12
CMD GP - 10	33
CMD GP - 11	6
CMD GP - 12	3
CMD GP - 13	1
CMD GP - 14	26
CMD GP - 15	2
CMD GP - 16	21
CMD GP - 18	9
CMD GP - 19	82
CMD GP - 20	1
CMD GP - 21	46
CMD GP - 23	2

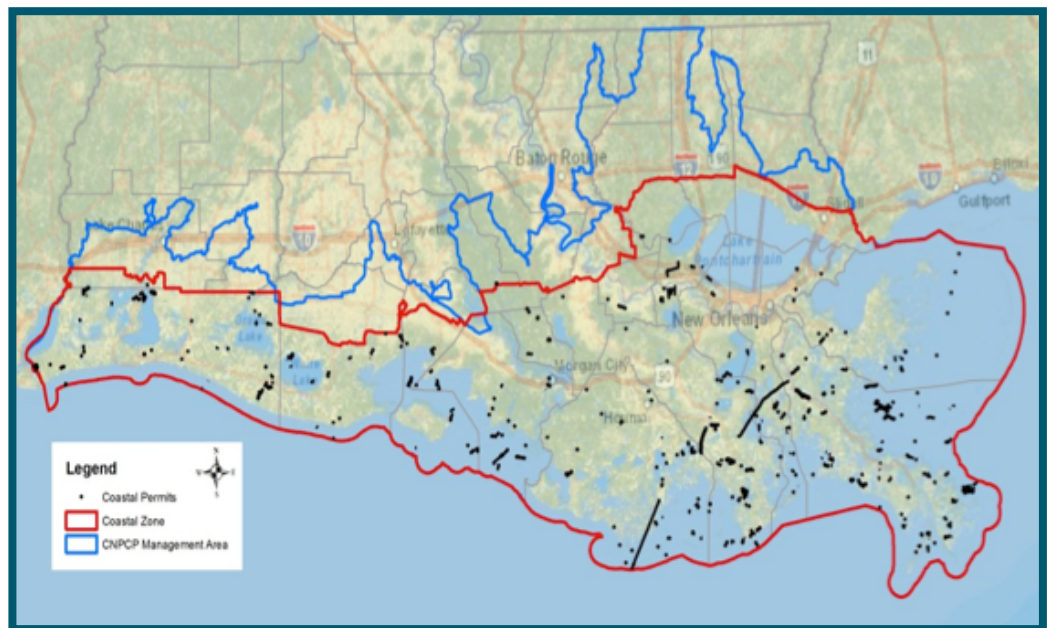


Figure 39. New Coastal zone map of GPs issued by OCM in 2012.

St. Tammany Parish's LCP, 1 of 10 coastal zone parishes approved to issue permits that are of local concern, issued 15 permits during FFY 2012. This is significant, because St. Tammany Parish is the CNPCP's model parish due to the fact that every permit they issue the parish requires a detailed description of proposed construction site storm water pollution management plan in order for a permit application to be complete.

Below is a summary table and location map of permits issued in St. Tammany Parish's LCP in 2012.

6 – No Direct and Significant Impacts
7 – Exempt
2 – Coastal Use Permit

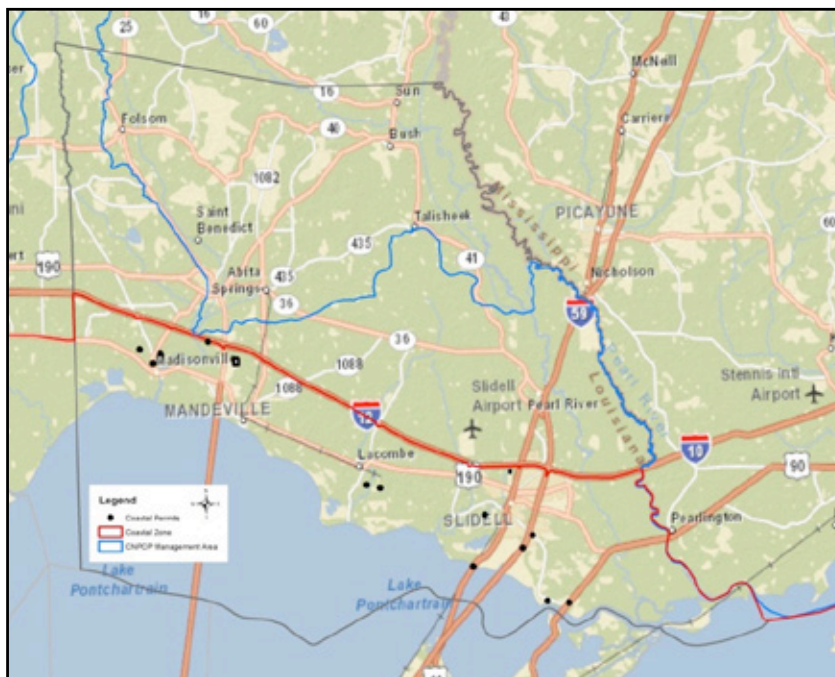


Figure 40. Permits issued by St. Tammany LCP in 2012.

7.1.2 Existing Development

In FFY 2012, CNPCP continued to participate in the Center for Planning and Excellence (CPEX) efforts to provide information on sustainable development techniques. In addition, Jefferson Parish Department of Environmental Affairs, Stormwater division stenciled/marked 60 storm drains during FFY 2012.

Nonpoint Pollution/Educational Outreach Initiatives performed by the Jefferson Parish LCP include:

- Posters and essays for the annual storm water NPS pollution and solutions poster-essay contest were judged during this reporting period. The winners and honorable mentions were honored at the annual awards banquet at Jefferson Parish on April 19, 2012. The winning posters were displayed throughout the summer.
- The Jefferson Parish NPS Pollution/Solutions Poster and Essay Contest winners and honorable mentions were displayed at the Jefferson Parish West Bank Regional Library through July 2012.
- The storm water division recently completed a grant awarded to Jefferson Parish Department of Environmental Affairs by Keep Louisiana Beautiful, Inc. The grant funds allowed the storm water division to have bi-lingual storm drain markers created and bi-lingual signage for the Parish's trash drop-off sites on David Dr. in Metairie and Lapalco Blvd. in Marrero, as a way of expanding the department's public education program to a broader spectrum of the population.
- In September 15, 2012, staff from the storm water division accompanied by a student volunteer, participated in the annual Beach Sweep sponsored in part by the Lake Pontchartrain Basin Foundation. Volunteers assigned to Zone 32, helped clean litter from streets and installed 54 educational, bi-lingual storm drain markers in the "Bucktown" area between Lake Ave. and Pier St. in Jefferson Parish.
- Plans are currently underway for the implementation of the 2012-2013 NPS Pollution and Solutions Poster Essay Contest and Enviroscope Presentations.

7.1.3 On-Site Disposal Systems (OSDS)

In FFY 2012, a multi-agency effort began between LDNR, LDEQ, and LDHH to geocode LDHH's existing OSDS database. LDEQ provided watershed subsegment datasets to run a spatial analysis of the OSDS database. The resulting database will include addresses, and coordinates associated with each system. In FFY2013, LDNR GIS staff will continue to process the data as it becomes available from LDHH.

Marinas:

In FFY 2012, the CNPCP Louisiana Clean Marina Program completely recertified all of Louisiana Clean Marinas. More information on the Clean Marina Program can be found on the OCM's webpage at <http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=124>

Hydromodification:

Permits issued during FFY 2012 addressing this category can be found in the above section on Urban Development. In addition, the CNPCP continued to work with its stakeholders, and other state agencies and federal partners to implement the management measures of this category.

Wetlands, Riparian Areas, and Vegetated Treatment Systems:

In FFY 2012, the CNPCP continued to work with its stakeholders, and other state agencies and federal partners to implement the management measures of this category.

Administration:

In FFY 2012, LDNR and LDEQ continued to jointly coordinate their programs to ensure that CPNCP management measures are implemented for each category.

7.2 Hydromodification Statewide Program

In FFY 2012, LDEQ worked with parish police jurors in Ouachita River Basin and Red River Basin to include BMPs in hydromodification projects for Turkey Creek, Hurricane Creek, Bayou Choctaw, Bayou Macon and Bayou Portage. LDEQ's Stream Survey Section assisted the NPS Program surveying portions of Turkey Creek where debris at bridge crossings caused reduced flows down stream. Sediment builds up in these portions of the stream, reducing its carrying capacity and causing flooding upstream. LDEQ's NPS staff continues to work with design engineers and the parish police jury on designs to protect water quality and improve instream flows in Turkey Creek. In February of 2012, LDEQ's NPS staff made a presentation to the State Police Jury Association on water quality goals and objectives of Louisiana's NPS Management Plan and how hydromodification activities can affect water quality if BMPs are not utilized in the projects. LDEQ continues to work with parishes and watershed coordinators to protect riparian habitat and prevent water quality impacts from hydromodification.

7.3 Source Water Protection Program (SWPP) in Lafourche, Terrebonne and Assumption Parishes



NICHOLLS
STATE UNIVERSITY



Lafourche
Freshwater
District

Bayou Lafourche
Fire Department

In FFY2012, LDEQ and Nicholls State University (NSU) continued addressing the elevated fecal coliform levels on a second Section 319 project funded for the lower portion of Bayou Lafourche from Labadieville to Donaldsonville. The first project covered the upstream portion of the Bayou between Valentine to Labadieville. In June of 2011, LDEQ SWPP staff and NSU staff began a reconnaissance of the study area to select the most representative sampling sites. In September of 2011, LDEQ began conducting the sampling with NSU conducting the analysis and interpretation of the data. Thirty-four sampling sites were sampled through August 2012 for fecal coliform, optical brighteners and human molecular markers. After analyzing all of the data, NSU identified 12 critical areas contributing human sewage to Bayou Lafourche.

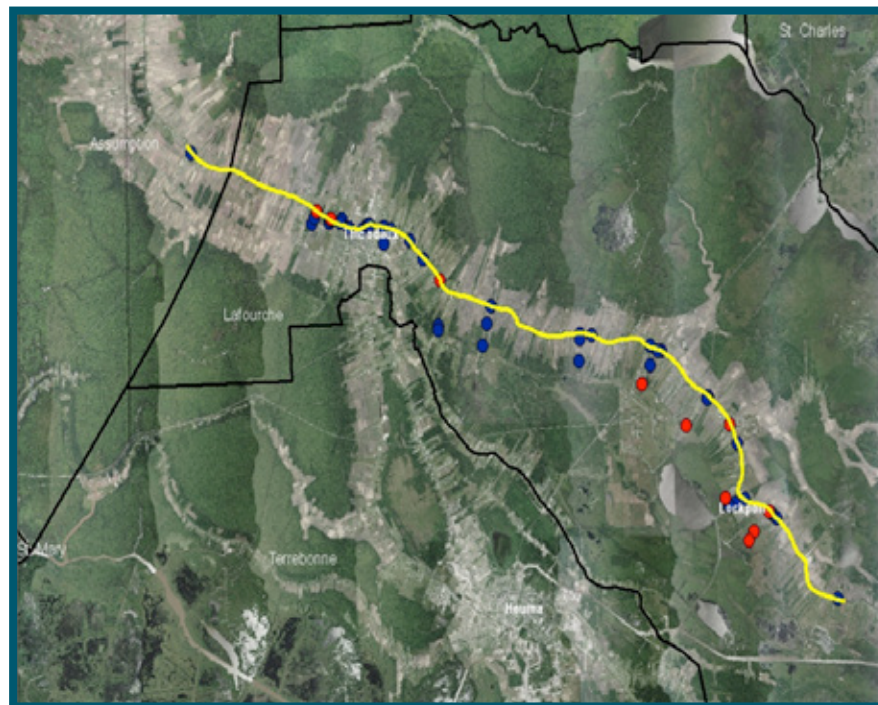


Figure 41. Sampling location sites along Bayou Lafourche.

In FFY 2012, LDEQ SWPP staff coordinated efforts with NSU, Terrebonne Parish Consolidated Waterworks, Lafourche Freshwater District and BTNEP in applying for various grants to secure funding for a feasibility study. The study would be for establishing community sewage systems and conducting education and outreach activities on home sewage treatment system maintenance. Brochures were developed to educate the community on proper system maintenance and included with BTNEP's clean up day notices.

The unique layout and drainage system of the community adds to the complexity in solving the problem. Individual homes and businesses are located along the bayou and subdivisions are located sporadically perpendicular to the bayou. Many of these subdivisions utilize individual home sewage treatment systems that discharge to ditches that carry the waste water directly to the bayou. The best possible solutions

involve a combination of education, repair and replacement of malfunctioning systems, connecting unsewered communities to existing community systems or creating new community systems. In FFY 2013, the SWPP staff will be working closely with the community to solve this problem in the critical areas identified by NSU.



Figure 42. Aerial photo of the unique layout of subdivisions along Bayou Lafourche.

7.4 Statewide Urban Activities and Milestones

7.4.1 Bayou Land RC&D- Tip the Block Program

In July of 2012, Bayou Land RC&D partnered with Green Light New Orleans, Longue Vue House and Gardens, New Orleans Food and Farm Network, and other organizations to Tip the Block in New Orleans. Tip the Block is a Green Light New Orleans program that organizes environmental advocacy efforts block-by-block. For this Tip the Block service weekend there were multiple projects going on in different neighborhoods. Bayou Land RC&D cleaned and marked storm drains, while other organizations worked with volunteers to build gardens, install rain barrels and replace traditional light bulbs with energy efficient ones and clear vacant lots. With the help and hard work of Volunteer Evangelical Lutheran Church of America teenagers and their mentors over 350 storm drains were cleaned and marked in New Orleans.



Figure 43. Orleans Parish storm drain markers.

7.5 Statewide Onsite Home Sewage Program

7.5.1 Calcasieu Parish Inspection Project Serves as a Model for Louisiana



Calcasieu Parish
Police Jury



To address fecal coliform problems in Calcasieu Parish, the Police Jury augmented their existing individual home sewage system inspection program to improve water quality in Calcasieu Parish water bodies. The objectives are to inspect an estimated 33,000 individual home sewage systems located within unincorporated areas of Calcasieu Parish and to educate home and business owners with proper operation and routine maintenance of their systems. This project implements statewide milestones of the NPS Management Plan to reach short-term and long-term objectives geared toward proper operation of individual home sewage systems. Innovative Technology utilizing low maintenance UV systems are being considered as a means to disinfect individual home sewage systems.

Initially, postcards are mailed out to residents in the targeted areas a week prior to the inspections taking place giving residents an opportunity to call with questions or requests. To assist in managing the program, the parish coordinates with Southwest Call Center to handle communications between customers and the parish. The call center handles approximately 200 calls a month. Five (5) parish inspectors conduct inspections for accessibility, status of electrical connections, presence and operation of the aerator motor, sludge depth in clarifier and condition of discharge. Tags are used to alert residents of the inspection outcome: green for passed, red for failed, and yellow for inaccessible. Once the inspection is completed, location and condition of the systems are logged into a database and the sites noted on GIS maps.



Figure 44. Detailed database of location and condition of inspected systems and location of uninspected system.

As of October 31, 2012, a total of 4,925 (15 percent of 33,000) on-site sewage systems have been inspected. Of these inspections, 4,192 were mechanical plants and 733 were other types of systems (septic or community). Seventy percent (2,942) of mechanical systems passed inspection and the remaining thirty percent (1,250) failed, while eighteen percent (133) of the other types of systems failed initial inspections. The Calcasieu Parish Office of Community Services has funding available to residents whose systems fail the inspection and are unable to pay for the required repairs. On average, 300 gallons of water are treated by these systems daily, resulting in the improvement of an estimated 319,200 gallons per day.






Tags	Total Inspections = 4925	
	Mechanical Plants Passed	2942
	Mechanical Plants Failed	1250
	Other Types of Systems Passed	600
	Other Types of Systems Failed	133
	Systems Upgraded Since	1064

Table 9. Outcome of inspections as of October 31, 2012.

7.6 Source Water Assessment Program (SWAP) Risk Assessment Tool Development

Source water risk assessments were completed for all public water supply systems between 2000 and 2003. Since that time data influencing a water system's risk has changed, however LDEQ has not had the tools to perform new assessments. In FFY 2012, LDEQ's GIS Center and SWAP staff has successfully completed and is currently using the groundwater portion of the SWAP Calculator®. The surface water version is anticipated to be completed in 2013.

SWAP Calculator® uses LDEQ's existing GIS functionality to perform new risk assessments of water systems on an as needed basis. This tool automates the generation of new or updated source water assessment reports along with corresponding map(s) and well photo(s) for a water system. These new "SWAP Reports" are used by the Drinking Water Protection Program (DWPP) staff whenever drinking water protection activities are initiated. DWPP staff and citizen volunteers also use these SWAP Reports when performing visits to businesses that are potential sources of contamination to inform them of their potential impact on their drinking water source.



LDEQ GIS Center

7.7 Drinking Water Protection Programs (DWPP)



Morehouse Parish
Webster Parish
Tangipahoa Parish

In FFY 2012, LDEQ introduced the DWPP to three (3) parishes, including Morehouse, Webster and Tangipahoa. Contingency plans were developed for water systems in all three (3) parishes. LDEQ DWPP staff, local officials and citizens participated in community meetings in each parish to discuss DWPP activities.

Morehouse Parish: DWPP committee members included LDEQ DWPP staff, local citizens and officials. Activities to protect drinking water included: mitigating the potential for ground water contamination from irrigation wells or public water systems, educating the public on where to recycle used oil and batteries, and educating 78 local businesses/facilities on how to protect the water resources.

Webster Parish: LDEQ worked with 33 public community water systems in Webster Parish to develop contingency plans and introduce the model ordinance to protect public water wells. One hundred thirty eight local owners and operators were educated by DWPP committee members, LDEQ DWPP staff, and Louisiana Rural Water Association (LRWA) of the potential sources of contamination.

Tangipahoa Parish: LDEQ DWPP staff assisted all 38 active public community water systems in developing contingency plans. Committee members and LDEQ DWPP staff educated 180 business owners and operators on how to protect drinking water sources. In addition, LDEQ DWPP staff presented DWPP presentations to the City of Hammond Kiwanis Club, and the Town of Ponchatoula Kiwanis and Rotary Clubs.



Figure 45. Morehouse Parish DWPP committee

7.8 Highway Right-of-Way Erosion Remediation: Implementation of a Residue Management BMP



LDEQ partnered with LSUAgCenter on a Highway Right-of-Way Erosion Remediation project in August of 2009. The goal was to quantify the effectiveness of mulch/compost as an erosion control BMP. Four (4) right-of-way study sites were employed in this project: one (1) site was located on Highway 61 south of St. Francisville, and three (3) sites were located on Interstate 49 south of Alexandria. A mulch/compost mix (50 percent wood chips/50 percent compost) was applied with a blower truck to four (4) sets of paired plots on the four (4) study sites which represented a range of slopes and soil types. Two (2) of the eight (8) plots were designated as control plots and received no mulch/compost and the remaining plots received either 2" or 4" of the mulch/compost mix. All plots were bordered by a metal boundary that was inserted into the soil surface. Light tillage with an auto-tiller was performed on selected plots. The site on Highway 61 was in an area that was under active construction during 2010 and 2011. The three (3) sites on Interstate 49 were not under active construction, but were located on destabilized and actively eroding soils. Auto samplers, H-flumes, data loggers and moisture/temperature probes were installed at all four (4) sites.

Plots were installed in March 2010 and monitored continuously through March 2012. Water from each plot was directed into a standard H-flume and collected with an automated sampler during each storm water event. Soil samples, mulch/compost samples, and numerous runoff samples were collected and analyzed. Runoff water quality parameters included pH, electrical conductivity, DO, TSS, turbidity, volatilized suspended solids, and biochemical oxygen demand. Data loggers and probes continuously recorded soil moisture and soil temperature at two locations in each plot.

Results showed dramatic decreases in TSS and turbidity in response to both 2" and 4" mulch/compost treatments compared to the control plots, with 4" slightly more effective than 2". Tillage incorporation of mulch/compost was shown to decrease the effectiveness of the application and is not recommended. Plots with the mulch/compost treatment retained more moisture throughout the year than control plots, and provided moisture needed to support vegetation during dry summer periods. Soil temperatures in plots with mulch/compost were moderated; mulch/compost plots were generally warmer in the winter and cooler in the summer than the control plots.



Figure 46. Dr. Magdi Selim collecting monitoring data.



Figure 47. Application of a mulch/compost mix to study plot.

Given the outstanding performance of mulch/compost as an erosion control BMP, a draft specification was proposed for adoption by the Louisiana Department of Transportation and Development (LDOTD). This specification calls for the use of 3" of mulch/compost for placement on roadsides as a compromise between material cost and erosion control performance. Project results showed LDOTD can effectively recycle trees cleared during new construction, grind the trees on-site to produce mulch of an acceptable size, blend the mulch with compost, and place the mulch/compost mix on roadside construction sites or established roadsides prone to erosion. Demonstration plots which display the mulch/compost mix and summarize the project with signage were established for public viewing at two (2) Louisiana Welcome Centers (I-49 - Alexandria and U.S. 61 - St. Francisville).

This project was highlighted in the Journal of Hydrology, Volumes 468-469, pages 257-267. The article can be found at [**http://www.sciencedirect.com/science/article/pii/S0022169412007196**](http://www.sciencedirect.com/science/article/pii/S0022169412007196)



Statewide Milestones for Water Quality Improvement	2012
Number of Water Bodies identified in LA's 1998/2000 IR or subsequent years as being primarily NPS impaired that are partially or fully-restored (WQ-10): Identify Fully Restored Water Bodies in Appendix C of State's IR Primarily Impaired by NPS Pollutants in 1999 court ordered 303(d) list or 1998/2000 IR; Review NPS Related Activities in Watershed where Water Body was Restored; Write NPS Success Story; Identify Activities to Maintain Water Quality.	23
Number of Water Bodies identified in LA's 2002 IR as not attaining water quality standards where standards are now fully attained (SP12): Review 2002 IR for impaired waters; ID NPS priority parameters; Review Appendix C of IR to Identify NPS impaired waters that fully attain water quality standards; Review NPS Related Activities in Watershed where water quality standards are attained; Write NPS Success Story; Identify Activities to Maintain Water Quality.	16
Estimated Annual Reductions in Million of Pounds of Nitrogen from NPS to Water Bodies (from Section 319 funded projects) (WQ-9a): Annually Review information from LDAF, USDA, Watershed Coordinators, NPS staff and Stakeholders for NPS Load Reductions of Nitrogen; Include information in NPS Annual Report (not currently reported by LDAF).	519 pounds ¹
Estimated Annual Reductions in Million of Pounds of Phosphorus from NPS to Water Bodies (from Section 319 funded projects) (WQ-9b): Annually review information from LDAF, USDA, Watershed Coordinators, NPS staff and Stakeholders for NPS Load Reductions of Phosphorus: Include information in NPS Annual Report (not currently reported by LDAF).	129 pounds ¹
Estimated Annual Reductions in Million of Pounds of Sediment from NPS to Water Bodies (from Section 319 funded projects) (WQ-9c): Annually review information from LDAF, USDA, Watershed Coordinators, NPS staff and Stakeholders for NPS Load Reductions of Sediment: include information in NPS Annual Report.	89 million pounds
Number of Water Bodies Where Instream Concentrations of NPS Parameters Have Been Reduced (i.e. sediment, fecal coliform bacteria, nutrients): Annually review water quality data for reductions in sediment, fecal coliform bacteria and nutrients as a result of NPS activities; Include information in NPS Annual Report (will be reported in 2012 and subsequent years).	7
Number of NPS Impairments Removed from LA's IR: Annually review state IR for NPS impairments (DO, Fecal, TSS, etc.) removed as a result of NPS activities; Include information in NPS Annual Report.	76
Basin/Watershed Milestones for Water Quality Improvement	2012
Watershed Implementation Plans Developed - Baseline is 2012	13
Identified "Priority Areas" in the Watershed for BMP Implementation	20
Selected BMPs to Achieve NPS Load Reductions	20
Appropriate Stakeholders Involved in Watershed Implementation	20
BMPs Implemented in Watershed "Priority Areas"	12
Water Quality Monitoring to Evaluate Effectiveness of BMP Implementation	14
Water Quality Data Analyzed for Water Quality Improvements	14
Develop Success Story or Identify Future Actions to Achieve Success	1
Delist Water Body from Water Quality Impairment List	23
Progress in Reducing Unliquidated Obligations (ULO)	2012
Federal Funds Included with 2012 as a Baseline (in millions of dollars for 2012-2017)	\$7.2 Million

¹Applies to one (1) project.

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Activity Milestones to Meet Water Quality Goals	2012
Statewide Agricultural Milestones	
Annually Evaluate Progress in Each of These Activities	√
Partner with LDAF on Data-sharing and BMP Implementation for Pesticides	√
Continue to Implement Nutrient and Sediment BMPs in Agricultural Watersheds	√
Continue to Prioritize Water Bodies Impaired for Fecal Coliform Bacteria for Water Quality Improvement, Partial and Full Restoration	√
Expand Statewide Educational Programs to include Electronic Media and Tools	√
Continue to Partner with LDNR-OCM on implementation of CNPCP	√
Reduce the Number of Agricultural Watersheds Impaired by NPS Pollution (Baseline is 85, based on 2010 IR); Cropland (Irrigated and Non-Non Irrigated Crop Production)	57
Reduce the Number of Agricultural Watersheds Impaired by NPS Pollution (Baseline is 10, based on 2010 IR); Pastureland (Managed Pasture)	14
Determine if Additional Steps are Necessary to Improve Water Quality in Agricultural Watersheds	√
Statewide Forestry Milestones	
Annually Evaluate Progress in Each of these Activities	√
Host a Series of Forestry Water Quality Workshops to Increase BMP Compliance Rate	X
Continue to Implement Forestry and Streambank Protection BMPs in Forested Watersheds	√
Expand Statewide Educational Programs to Include Electronic Media and Tools	√
Continue to Partner with LDNR-OCM on implementation of CNPCP	√
Reduce the Number of Forested Watershed Impaired by NPS Pollution (Baseline is 17, based on 2010 IR)	21
Determine if Additional Steps are Necessary to Improve Water Quality in Forestry Watersheds	√
Activity Milestones to Meet Water Quality Goals	2012
Statewide Individual Home Sewerage Systems	
Annually Evaluate Progress in Each of these Activities	√
Increase Coordination with LDHH and Parishes on Inspection Programs for Individual Home Sewage Systems	√
Examine New Technologies to Determine Feasibility of Reducing Nutrient and Bacteria Loads from Individual Systems	√
Coordinate with State Revolving Loan Fund Program in Parishes/Watersheds where Community Systems could replace Individual Systems	√
Activity Milestones to Meet Water Quality Goals	2012
Partner with LDNR-OCM on implementation of CNPCP	√
Reduce the Number of Water Bodies Impaired by Fecal Coliform Bacteria from Individual Home Sewerage Systems (Baseline is 61, based on 2010 IR)	61
Statewide Resource Extraction Milestones	
Annually Evaluate Progress in Each of these Activities	√
Coordinate with Office of Conservation on Potential Restoration Opportunities for Sand and Gravel Mines	√
Reduce the Number of Water Bodies Impacted by Sand and Gravel Mining Activities (Baseline is 1, based 2010 IR)	1

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Statewide Construction Milestones	
Annually Evaluate Progress in Each of these Activities	√
Coordinate with LDOTD on Programs to Reduce Sediment from Road and Highway Projects	√
Activity Milestones to Meet Water Quality Goals	2012
Coordinate with Parishes and Municipalities to Reduce Sediment from Residential Construction Projects	√
Partner with LDNR-OCM on implementation of CNPCP	√
Urban Storm Water Milestones	
Annually Evaluate Progress in Each of these Activities	√
Continue to Host Educational Outreach Activities with Municipalities on Green Infrastructure and Storm Water BMPs/Ordinances	√
Partner with Stakeholders on Nutrient Reduction Activities in Urban and Rural Communities	√
Provide Materials to Municipalities on Urban NPS Pollution, BMPs and Ordinances for Reducing Pollutant Loads	√
Activity Milestones to Meet Water Quality Goals	2012
Hydromodification Milestones	
Annually Evaluate Progress in each of these Activities	√
Continue to Make Recommendations through SOV and 401 Water Quality Certification processes to Local Parish Drainage Boards and Police Juries on Hydromodification BMPs	√
Track Water Quality Improvements that Result from these Recommendations	√
Reduce the Number of Water Bodies Impaired by Hydromodification Activities (Baseline is 2, based on 2010 IR)	2
Activity Milestones to Meet Water Quality Goals	2012
Source Water Protection	
Develop contingency plans for water systems in targeted communities in the event of an emergency or loss of the water supply	√
Disseminate BMPs through visits to businesses considered potential sources of contamination to drinking water supplies	√
Partner with each committee to introduce a drinking water protection model ordinance for adoption by local governments	√
Activity Milestones to Meet Water Quality Goals	2012
Coastal Nonpoint Pollution Control Program	
Continue to implement CNPCP management measures for each category identified as contributing to coastal NPS pollution	√
Continue to partner with LPBF, BTNEP and Atchafalaya Basin Programs on coastal NPS program activities	√
Continue to partner with coastal parishes to implement management measures for urban, home sewage and hydromodification	√
Continue to partner with LDAF, USDA and LSU AgCenter to implement management measures for agricultural and forestry	√
Continue to collect water quality data and evaluate effectiveness of management measure implementation in improving water quality	√